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(21)Application number : 10-261976 (71)Applicant : FUNAI ELECTRIC CO LTD  
FUNAI ELECTRIC ENG CO LTD

(22)Date of filing : 16.09.1998 (72)Inventor : HAMAZAKI TADASHI

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(54) PROGRAM SELECTION STATION GUIDE DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a program selection station guide device, capable of visually recognizing whether or not reception is possible and indicates a receivable channel among displayed channels.

SOLUTION: This program selection station guide device 1 is provided with a reception device 4, equipped with a selecting station and receiving means 10 which receives a broadcast radio wave sent from a broadcasting station and selects and receives a channel out of it, and also extracts data regarding the current time and data regarding program information sent through respective channels from the broadcasting radio wave, a data storage part 15 storing the respective extracted data and a table generation part 20 which generates a high-audience-rated channel order table, showing whether or not reception is possible for every channel at the present time

based on data stored in a channel counter 19 counting and storing selected and received channels and data stored in a data storage part 14 and with a display means 5. An arbitrary channel from among the channels displayed in the high-audience-rating channel order table is displayed to select the station and receive it.

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#### CLAIMS

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[Claim(s)]

[Claim 1]Have with a receiving set and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with the above-mentioned receiving set characterized by comprising the following, and. Based on each data stored in the above-mentioned data storing part, it displays on the above-mentioned displaying means in the state where it can be recognized visually whether it is [ table / above-mentioned / quantity viewing-and-listening channel turn ] improper in ability ready for receiving in current time for every channel visually, A program tuning guide device which carries out carrying out channel selection reception of the directed channel to the above-mentioned receiving set with the feature by directing arbitrary channels out of a channel in which the viewing and listening is possible.

A channel selection reception means which channel selection reception of the desired channel is carried out out of two or more channels, and extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received.

A data storing part which carries out memory storing of each data extracted by the above-mentioned channel selection reception means.

A memory measure which counts and memorizes the above-mentioned channel by which channel selection reception was carried out exceeding predetermined time by

the above-mentioned channel selection reception means.

A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with many count numbers by which channel selection reception was carried out by the above-mentioned channel selection reception means based on contents memorized by this memory measure in an order from a higher rank.

[Claim 2]Have a receiving set and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with the above-mentioned receiving set characterized by comprising the following, and. Based on each data stored in the above-mentioned data storing part, it displays on the above-mentioned displaying means in the state where it can be recognized visually whether it is [ table / above-mentioned / quantity viewing-and-listening channel turn ] improper in ability ready for receiving in current time for every channel visually, A program tuning guide device which carries out carrying out channel selection reception of the directed channel to the above-mentioned receiving set with the feature by directing arbitrary channels out of a channel in which the viewing and listening is possible.

A channel selection reception means which channel selection reception of the desired channel is carried out out of two or more channels, and extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received.

A data storing part which carries out memory storing of each data extracted by the above-mentioned channel selection reception means.

A memory measure which counts and memorizes receiving time by which channel selection reception was carried out for every channel by the above-mentioned channel selection reception means.

A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with long receiving time by which channel selection reception was carried out by the above-mentioned channel selection reception means based on contents memorized by this memory measure in an order from a higher rank.

[Claim 3]Have a receiving set and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with the above-mentioned receiving set characterized by comprising the following, and. Based on each data stored in the above-mentioned data storing part, the above-mentioned quantity viewing-and-listening channel turn table is displayed on the above-mentioned displaying means, where a channel of a receive not ready is deleted in current time, A program tuning guide device which carries out carrying out channel selection reception of that directed channel to the above-mentioned receiving set with the feature by directing arbitrary channels out of a channel displayed on this

displaying means.

A channel selection reception means which channel selection reception of the desired channel is carried out out of two or more channels, and extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received.

A data storing part which carries out memory storing of each data extracted by the above-mentioned channel selection reception means.

A memory measure which counts and memorizes the above-mentioned channel by which channel selection reception was carried out exceeding predetermined time by the above-mentioned channel selection reception means.

A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with many count numbers by which channel selection reception was carried out by the above-mentioned channel selection reception means based on contents memorized by this memory measure in an order from a higher rank.

[Claim 4]Have a receiving set and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with the above-mentioned receiving set characterized by comprising the following, and. Based on each data stored in the above-mentioned data storing part, the above-mentioned quantity viewing-and-listening channel turn table is displayed on the above-mentioned displaying means, where a channel of a receive not ready is deleted in current time, A program tuning guide device which carries out carrying out channel selection reception of that directed channel to the above-mentioned receiving set with the feature by directing arbitrary channels out of a channel displayed on this displaying means.

A channel selection reception means which channel selection reception of the desired channel is carried out out of two or more channels, and extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received.

A data storing part which carries out memory storing of each data extracted by the above-mentioned channel selection reception means.

A memory measure which counts and memorizes receiving time by which channel selection reception was carried out for every channel by the above-mentioned channel selection reception means.

A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with long receiving time by which channel selection reception was carried out by the above-mentioned channel selection reception means based on contents memorized by this memory measure in an order from a higher rank.

[Claim 5]Have a receiving set and a displaying means which displays a program sent

by a channel by which channel selection reception was carried out with the above-mentioned receiving set characterized by comprising the following, and. A program tuning guide device which carries out carrying out channel selection reception of that directed channel to the above-mentioned receiving set with the feature by directing arbitrary channels out of a channel which displayed the above-mentioned individual high viewing-and-listening channel turn table on the above-mentioned displaying means, and was displayed on this displaying means.

A channel selection reception means for carrying out channel selection reception of the desired channel out of two or more channels.

An identification device for making a televiewer who views and listens to a program sent by the above-mentioned channel identify.

A memory measure which counts and memorizes a channel by which channel selection reception was carried out according to the above-mentioned televiewer by the above-mentioned channel selection reception means.

A tabulation means to create an individual high viewing-and-listening channel turn table which arranged a channel with many receiving conditions by which channel selection reception was carried out by the above-mentioned channel selection reception means based on a data content according to televiewer remembered by this memory measure in an order from a higher rank for every televiewer.

[Claim 6]By displaying said individual high viewing-and-listening channel turn table on said displaying means in the state ability ready for receiving or where it can be recognized visually for every channel whether it is improper visually in current time, and directing arbitrary channels out of a channel in which the viewing and listening is possible, The program tuning guide device according to claim 5 which carries out carrying out channel selection reception of the directed channel to said receiving set with the feature.

[Claim 7]By directing arbitrary channels out of a channel which said individual high viewing-and-listening channel turn table was displayed on said displaying means where a channel of a receive not ready is deleted in current time, and was displayed on this displaying means, The program tuning guide device according to claim 5 which carries out carrying out channel selection reception of the directed channel to said receiving set with the feature.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention is used, for example for multi-channel broadcasting systems, such as satellite broadcasting and CATV (cable television) broadcast, and relates to a suitable program tuning guide device.

[0002]

[Description of the Prior Art]In television broadcasting in recent years, what has the dramatically large numbers of channels is spreading like satellite broadcasting or CATV (cable television) broadcast, for example. In such multi-channel broadcasting, the program of various genres is broadcast from each channel, While a televiewer becomes possible [ choosing the high program of the expert doubled with the individual's idea from the a large number channels ] and his convenience is improving by leaps and bounds, he has the fault that operation of searching those channels becomes complicated.

[0003]The device for a televiewer to search conventionally the channel for which self asks easily that such a fault should be canceled is examined variously. For example, the storage parts store provided with the number of times of a channel selection of the channel which the televiewer tuned in in the device is made to memorize the program tuning device indicated to JP,7-15677,A, it is arranged in an order with much number of times of a channel selection based on the memorized data, and is displayed on the screen. According to this device, operation in particular of registration etc. is not needed but that channel selection operation counts as the number of times of a channel selection automatically only by a televiewer tuning in a channel. And it is totaled automatically, and the counted data is displayed on a screen, when a televiewer operates it. Therefore, the televiewer can call easily a channel with high viewing-and-listening frequency to a screen, and it becomes possible to switch a channel simply only by directing it on a screen.

[0004]

[Problem(s) to be Solved by the Invention]However, in the device mentioned above, the case where the channel displayed by a televiewer's operation on the screen cannot choose depending on time arises. That is, it is because there is also a channel which is not broadcast depending on time for there to be also a thing [ with / the thing of broadcast ] without that right for 24 hours, and for a televiewer view and listen with some channel. In such a case, supposing the channel in which the televiewer made operation selection, for example is a channel which is not broadcast in the current time, a televiewer, Operation which once returns to the screen which displays the race card arranged in order of the channel with much [ again ] number of times of a channel selection is carried out, It will be carried out by directing the channel of further others whether other channels are called, or the number of the channel under broadcast is inputted direct and the channel under broadcast is called. However, also when reinputting a channel, after investigating whether the channel is [ \*\*\*\*\* ] under broadcast in a race card etc., it will be necessary to input, and the problem of

applying to convenience will arise.

[0005] For some viewers, the family structure member etc. may be using the TV receiver in collaboration with two or more persons, and the viewing time of the television in each viewer usually shows dispersion. Therefore, among each viewer, there is no opportunity to watch television not much, therefore a person with little number of times of a channel selection is also. Nevertheless, in order that the number of times of a channel selection may count uniformly at the time of channel selection, a possibility that the favorite channel of a viewer with little viewing time will not be displayed all over the race card put in order by the order with much number of times of a channel selection is high. Thus, for a viewer with little number of times of viewing and listening, the problem which may be unable to search its own favorite channel with the device mentioned above and to say arises.

[0006] The purpose of this invention is to provide the program tuning guide device used as the guide which is not based on a viewer's viewing time, displays a receivable channel in any time, and tunes in the displayed channel in view of the problem mentioned above. There is the purpose of this invention in providing a program tuning guide device with him, when two or more viewers use it together. [ able for each viewer to search his own favorite channel easily, and to tune it in ]

[0007]

[Means for Solving the Problem] In view of the purpose mentioned above, the program tuning guide device according to claim 1, Carry out channel selection reception of the desired channel out of two or more channels, and. A channel selection reception means which extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received, A data storing part which carries out memory storing of each data extracted by a channel selection reception means, and a memory measure which counts and memorizes a channel by which channel selection reception was carried out exceeding predetermined time by a channel selection reception means, A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with many count numbers by which channel selection reception was carried out by a channel selection reception means based on contents memorized by this memory measure in an order from a higher rank, Have preparation \*\*\*\*\* and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with a receiving set, and. Based on each data stored in a data storing part, it displays on a displaying means in the state where it can be recognized visually whether it is [ table / high viewing-and-listening channel turn ] improper in ability ready for receiving in current time for every channel visually, A receiving set is made to carry out channel selection reception of the directed channel by directing arbitrary channels out of a channel in which the viewing and listening is possible.

[0008]To therefore, a high viewing-and-listening channel turn table displayed on turn with many count numbers by which channel selection reception was carried out. The contents of data of program information and current time sent from a reception radio wave are made reflected, a televiewer can recognize visually whether it is ability ready for receiving in current time by this, and it becomes possible to carry out a channel selection out of a receivable channel. In order not to count, in reception below predetermined time, there is no volition to which it views and listens, and it becomes [ case of only turning a channel ] as [ add ].

[0009]The program tuning guide device according to claim 2, Carry out channel selection reception of the desired channel out of two or more channels, and. A channel selection reception means which extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received, A data storing part which carries out memory storing of each data extracted by a channel selection reception means, and a memory measure which counts and memorizes receiving time by which channel selection reception was carried out for every channel by a channel selection reception means, A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with long receiving time by which channel selection reception was carried out by a channel selection reception means based on contents memorized by this memory measure in an order from a higher rank, Have preparation \*\*\*\*\* and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with a receiving set, and. Based on each data stored in a data storing part, it displays on a displaying means in the state where it can be recognized visually whether it is [ table / high viewing-and-listening channel turn ] improper in ability ready for receiving in current time for every channel visually, A receiving set is made to carry out channel selection reception of the directed channel by directing arbitrary channels out of a channel in which the viewing and listening is possible.

[0010]To therefore, a high viewing-and-listening channel turn table displayed on turn that time by which channel selection reception was carried out is long. The contents of data of program information and current time sent from a reception radio wave are made reflected, a televiewer can recognize visually whether it is ability ready for receiving in current time by this, and it becomes possible to carry out a channel selection out of a receivable channel.

[0011]The program tuning guide device according to claim 3, Carry out channel selection reception of the desired channel out of two or more channels, and. A channel selection reception means which extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received, A data storing part which carries out memory storing of each data extracted by a channel selection



reception means, and a memory measure which counts and memorizes a channel by which channel selection reception was carried out exceeding predetermined time by a channel selection reception means, A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with many count numbers by which channel selection reception was carried out by a channel selection reception means based on contents memorized by this memory measure in an order from a higher rank, Have preparation \*\*\*\*\* and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with a receiving set, and. Based on each data stored in a data storing part, a high viewing-and-listening channel turn table is displayed on a displaying means, where a channel of a receive not ready is deleted in current time, A channel selection reception means is made to carry out channel selection reception of that directed channel by directing arbitrary channels out of a channel displayed on this displaying means.

[0012]To therefore, a high viewing-and-listening channel turn table displayed on turn with many count numbers by which channel selection reception was carried out. It becomes possible to make the contents of data of program information and current time sent from a reception radio wave reflected, and for a televiewer to be able to recognize only a receivable channel visually in current time by this, and to tune in.

[0013]The program tuning guide device according to claim 4, Carry out channel selection reception of the desired channel out of two or more channels, and. A channel selection reception means which extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received, A data storing part which carries out memory storing of each data extracted by a channel selection reception means, and a memory measure which counts and memorizes receiving time by which channel selection reception was carried out for every channel by a channel selection reception means, A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with long receiving time by which channel selection reception was carried out by a channel selection reception means based on contents memorized by this memory measure in an order from a higher rank, Have preparation \*\*\*\*\* and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with a receiving set, and. Based on each data stored in a data storing part, a high viewing-and-listening channel turn table is displayed on a displaying means, where a channel of a receive not ready is deleted in current time, A receiving set is made to carry out channel selection reception of that directed channel by directing arbitrary channels out of a channel displayed on this displaying means.

[0014]To therefore, a high viewing-and-listening channel turn table displayed on turn that time by which channel selection reception was carried out is long. It becomes

possible to make the contents of data of program information and current time sent from a reception radio wave reflected, and for a televiewer to be able to recognize only a receivable channel visually in current time by this, and to tune in.

[0015]The program tuning guide device according to claim 5, A channel selection reception means for carrying out channel selection reception of the desired channel out of two or more channels, An identification device for making a televiewer who views and listens to a program identify, and a memory measure which counts and memorizes a channel by which channel selection reception was carried out according to a televiewer by a channel selection reception means, A tabulation means to create an individual high viewing-and-listening channel turn table which arranged a channel with many receiving conditions by which channel selection reception was carried out by a channel selection reception means based on a data content according to televiewer remembered by this memory measure in an order from a higher rank for every televiewer, Have a receiving set which \*\*\*\*, and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with a receiving set, and. A receiving set is made to carry out channel selection reception of that directed channel by directing arbitrary channels out of a channel which displayed an individual high viewing-and-listening channel turn table on a displaying means, and was displayed on this displaying means. Therefore, an individual high viewing-and-listening channel turn table created for every televiewer can be recognized visually as a thing with each televiewer only for itself, and it becomes possible from the inside to tune in a channel.

[0016]In the program tuning guide device according to claim 5, the invention according to claim 6 an individual high viewing-and-listening channel turn table, It is displayed on a displaying means in the state ability ready for receiving or where it can be recognized visually for every channel whether it is improper visually in current time, and a receiving set is made to carry out channel selection reception of the directed channel by directing arbitrary channels out of a channel in which the viewing and listening is possible. Therefore, in current time, a televiewer can recognize visually whether it is ability ready for receiving, and it becomes possible to carry out a channel selection out of a receivable channel.

[0017]In the program tuning guide device according to claim 5, the invention according to claim 7 an individual high viewing-and-listening channel turn table, A receiving set is made to carry out channel selection reception of that directed channel by directing arbitrary channels out of a channel which was displayed on said displaying means where a channel of a receive not ready is deleted in current time, and was displayed on this displaying means. Therefore, it becomes possible for a televiewer to be able to recognize only a receivable channel visually in current time, and to tune in.

[0018]

[Embodiment of the Invention]The program tuning guide device of a 1st embodiment

of this invention is shown and explained to drawing 8 from drawing 1. The tuner 4 as a receiving set which receives the broadcasting electric-wave 3 sent by two or more channels from the broadcasting station 2, and tunes in a desired channel from them as the program tuning guide device 1 is shown in drawing 1. It has the monitoring device 5 as a displaying means which displays the program sent by the channel by which channel selection reception was carried out by the tuner 4. As for the tuner 4, it is possible to make it operate with the remote control 6 for performing various operations of channel selection operation, reserving operation, etc.

[0019]As shown in drawing 2, the broadcasting electric-wave 3 sent from the broadcasting station 2 stored various digital data in two or more packets, and is transmitted as the transponder 7 which connected them continuously and was formed. The radio frequency (RF=Radio Frequency) is respectively assigned to this transponder 7, and the tuner 4 can receive one of the transponders 7 sent by adjusting that radio frequency. [ two or more ]

[0020]The picture image data 7a and the voice data 7b of each program for 4-8 channels are contained in each transponder 7. The picture image data 7a is what stored the data about the image of the program for 4-8 channels in one packet. The data for one channel comprises two or more picture data, such as data for displaying the program by a standard screen, and data for making it display on a wide screen. And by choosing the gestalt of a channel and a screen by the tuner 4, the required data in the picture image data 7a is extracted, and it is transmitted to the monitoring device 5. The image of the program currently sent by the channel will be outputted to the display 8 of the monitoring device 5 by this. In this 1st embodiment, although the picture image data 7a is stored in one packet, it may be divided and stored in two thru/or the packet beyond it.

[0021]The voice data 7b is what stored the data about the sound of the program for 4-8 channels in one packet. The data for one channel comprises two or more data of the data for making the sound of the program output by a standard voice, the data for making it output by a sub voice, the data for making it output with other languages, etc. And by choosing the gestalt of a channel and a sound by the tuner 4, the required data in the voice data 7b is extracted, and it is transmitted to the monitoring device 5. The sound of the program currently sent by the channel will be outputted to the speaker 9 of the monitoring device 5 by this. By this 1st embodiment, although the voice data 7b is also stored in one packet, it may be divided and stored in two thru/or the packet beyond it. [ as well as the picture image data 7a ]

[0022]The reception program data 7c about the program sent to the transponder 7 by the channel in this transponder 7 on the other hand, The clock data 7e which is data about the data (henceforth broadcast data) 7d about the information on the program of each channel sent from the broadcasting station 2 and current time is contained where [ both ] the picture image data 7a and the voice data 7b in the transponder 7

are overlapped.

[0023]The reception program data 7c comprises two or more program information, such as the broadcasting day of each program for 4-8 channels stored in the transponder 7, broadcasting hours, a channel, a genre, a program content, and a program name. This reception program data 7c is updated by new information each time about the case where the case where broadcasting hours are changed on the way, and broadcasting hours are extended for example, etc. This reception program data 7c will be extracted by the data extraction part 13 of the tuner 4 out of that transponder 7, if the transponder 7 is received by the receive section 11 of the channel selection reception means 10 of the tuner 4 via the antenna 12. Memory storing of this extracted reception program data 7c is carried out at the reception-program-data storage parts store 14. The reception program data 7c stored in this reception-program-data storage parts store 14 can call the required information in it to the display 8 of the monitoring device 5 by operation of the remote control 6.

[0024]The broadcast data 7d is constituted from the broadcasting station 2 by the data about the information on all the programs sent by each channel, and serves as a timetable which expressed the program name and broadcasting hours for every channel to the tabular format. This broadcast data 7d will be extracted by the data extraction part 13 of the tuner 4 out of that transponder 7, if the transponder 7 is received by the receive section 11 of the channel selection reception means 10 of the tuner 4 via the antenna 12. And memory storing of the extracted broadcast data 7d is carried out at the data storing part 15. The contents of the data of the broadcast data 7d are updated about once per day at 4:00 of the time zone when a televiewer's receiving frequency is low for example generally, for example, early morning, etc.

[0025]The clock data 7e is data about current time, and is sent in the state where it was updated every several seconds. This clock data 7e will be extracted by the data extraction part 13 of the tuner 4 out of that transponder 7, if the transponder 7 is received by the receive section 11 of the channel selection reception means 10 of the tuner 4 via the antenna 12. And memory storing of the extracted clock data 7e is carried out at the data storing part 15.

[0026]The tuner 4 as a receiving set by specifying a channel number, With the radio frequency corresponding to the channel number, choose the transponder 7 sent from the broadcasting station 2, and it receives, The desired program is displayed on the monitoring device 5 by extracting the data about the program which agreed in the channel number among 4-8 in the transponder 7, and transmitting to the monitoring device 5. The tuner 4 counts the channel by which channel selection reception was carried out exceeding predetermined time, and has become what has possible displaying on the monitoring device 5 the high viewing-and-listening channel turn table 23 which arranged the channel with many the count number in an order from the

higher rank. It is a screen which can recognize visually whether it can view and listen to the high viewing-and-listening channel turn table 23 displayed on the monitoring device 5 at this time in current time. And the program tuning guide device 1 of a 1st embodiment makes the tuner 4 have carried out channel selection reception of the directed channel by directing arbitrary channels out of the channel to which it can be viewed and listened and which was displayed on the high viewing-and-listening channel turn table 23.

[0027]The tuner 4 carries out channel selection reception of the desired channel out of two or more channels of the broadcasting electric-wave 3 sent from the broadcasting station 2, and when it receives the broadcasting electric-wave 3, it has the channel selection reception means 10 which extracts various digital data out of the transponder 7 of the broadcasting electric-wave 3. The receive section 11 which has a function in which this channel selection reception means 10 switches received frequency to the radio frequency which agreed with the specified channel number, It comprises the data extraction part 13 which extracts the required data in the channel which agreed in the specified channel out of two or more channels of the transponder 7 of the broadcasting electric-wave 3 which received in this receive section 11 at any time.

[0028]And the inside of 4-8 in the transponder 7 received by the channel selection reception means 10, The picture image data 7a and the voice data 7b of a channel which were extracted in the data extraction part 13 are transmitted to the monitoring device 5 via the video detection circuit 16 and the sound detector circuit 17, respectively from the channel selection reception means 10. The program of the channel by which channel selection reception was carried out with the channel selection receiving set 10 is displayed on the monitoring device 5 by this. The data extraction part 13 extracts not only extraction of the picture image data 7a in the transponder 7, and the voice data 7b but other digital information, and is transmitting it to the reception-program-data storage parts store 14 or the data storing part 15.

[0029]The light sensing portion 18 which receives the order signal according [ the tuner 4 ] to the infrared signal from the remote control 6, The channel counter 19 as a memory measure which counts and memorizes the channel by which channel selection reception was carried out exceeding predetermined time by the channel selection reception means 10, It has a tabulation means 20 to create the high viewing-and-listening channel turn table 23 which arranged the channel selection receiving channel counted at the channel counter 19 in an order from the higher rank of a count number, and the control section 21 which carries out the control drive of each part of the tuner 4 with the order signal inputted into the light sensing portion 18.

[0030]The light sensing portion 18 serves as a means to receive the order signal by the infrared signal generated with the remote control 6. The order signal received by this light sensing portion 18 is inputted into the control section 21. By acquiring this

order signal, the control section 21 carries out the control drive of each part. The channel counter 19 serves as a memory measure which counts and memorizes the channel, when the channel selection reception means 10 carries out channel selection reception of the specific channel exceeding predetermined time. Namely, the control section 21 monitors the channel number which is carrying out channel selection reception by the channel selection reception means 10, and is measuring it by the timer 22 (refer to drawing 4) provided with the receiving time in the control section 21. And the control section 21 transmits that to the channel counter 19, when channel selection reception of the specific channel is carried out exceeding predetermined time. By this, the channel counter 19 can count and memorize now the channel number by which channel selection reception was carried out for every channel.

[0031]The contents counted and memorized at this channel counter 19 are transmitted to the tabulation means 20. And the tabulation means 20 creates the high viewing-and-listening channel turn table 23 as shown in drawing 3 based on the contents counted and memorized at the channel counter 19. On the other hand, when the tabulation means 20 creates the high viewing-and-listening channel turn table 23, it acquires the broadcast data 7d used as the data about the program information sent by the clock data 7e and each channel used as the data about the current time extracted from the transponder 7 from the data storing part 15. That is, the tabulation means 20 creates the high viewing-and-listening channel turn table 23 based on the data counted and memorized at the channel counter 19, and each data of the clock data 7e and the broadcast data 7d stored in the data storing part 15.

[0032]For this reason, the broadcasting hours of a program to which the high viewing-and-listening channel turn table 23 is sent by each channel, and the ability ready for receiving / improper information in current time on each channel was being reflected. By operating it using the remote control 6 and making the control section 21 drive, the high viewing-and-listening channel turn table 23 created in this way is sent to the monitoring device 5 from the tabulation means 20, and is displayed on the display 8 of the monitoring device 5.

[0033]The high viewing-and-listening channel turn table 23 is what arranged the channel with many count numbers in a certain day of the week by which channel selection reception was carried out in an order from the higher rank, as shown in drawing 3. This high viewing-and-listening channel turn table 23 is provided with the following.

Selection column 23a.

Ranking column 23b.

Channel display column 23c.

23 d of ready-for-receiving non-display columns, and the return section 23h for returning to the program display column 23e, 23 f of number-of-times display columns of viewing and listening and the page turning-over selecting part 23g, and the original

screen during broadcast.

And this high viewing-and-listening channel turn table 23, It is displayed on the monitoring device 5 in the state ability ready for receiving or where it can be recognized visually for every channel whether it is improper visually in current time, and the tuner 4 is made to have carried out channel selection reception of the directed channel by directing arbitrary channels out of the channel in which the viewing and listening is possible.

[0034]The selection column 23a located in the leftmost of this high viewing-and-listening channel turn table 23 is a thing in order to choose and specify the channel for which a televiewer asks, and the arrow type cursor 23j is movable up and down about the inside of the space of the plurality in this column by operation of the remote control 6. And when there is a channel for which it asks in the high viewing-and-listening channel turn table 23, a televiewer. By doubling within the limit which directs the channel which asks for the cursor 23j, and pushing the determination button 29c (refer to drawing 4) of the remote control 6, It is possible to switch the selection reception means 10 to the channel, to display on the display 8 the program currently sent by the channel, and to view and listen.

[0035]The column located in the right-hand of the selection column 23a is the ranking column 23b, and order with many selection reception times, i.e., the ranking from the 1st place to the 10th place, is shown. If the cursor 23j is doubled and directed to the page turning-over selecting part 23g described as "NEXT PAGE" located in the table bottom shown in this drawing 3, the channel by which ranking was carried out by the 20th place from the following ranking, i.e., the 11th place, will be displayed on the high viewing-and-listening channel turn table 23. When there is no following ranking, the display of "NEXT PAGE" of this page turning-over selecting part 23g was not displayed, and is come.

[0036]The column located in the right-hand of the ranking column 23b is the channel display column 23c for expressing a channel number. The columns of the right-hand are [ whether the channel displayed on the channel display column 23c in current time is improper in ability ready for receiving, and ] 23 d of ready-for-receiving non-display columns for a televiewer to recognize visually. That channel can recognize [ ability ready for receiving or ] visually whether it is improper in current time by a televiewer's making 23 d of this ready-for-receiving non-display column contrast with the channel display column 23c, and seeing.

[0037]During the broadcast which displayed the title of the program under present broadcast on the right-hand of 23 d of ready-for-receiving non-display columns by the channel, the program display column 23e, 23 f of number-of-times display columns of viewing and listening showing the number of times of viewing and listening in the prescribed period (setting to drawing 3 'for three months of 98.4 - 6) of the channel are provided in right-hand. The return section 23h for stopping the display of

this high viewing-and-listening channel turn table 23, and returning to the original channel is formed in the lower part of this table. Although the high viewing-and-listening channel turn table 23 is what totaled and displayed the data in a certain day of the week (it is Monday in drawing 3) in the prescribed period in this 1st embodiment, It is good also as that on which it may not be limited to what was mentioned above about the data displayed, and the data for one latest week and the data for one month may be sufficient, for example, or the data of these various kinds can be chosen and displayed.

[0038]The program tuning guide device 1 of this embodiment, As mentioned above, the table which only counted reception times and was arranged in order with many reception times is not created, Since the high viewing-and-listening channel turn table 23 is created based on the broadcast data 7d and the clock data 7e which are sent from the broadcasting station 2, it can be made to indicate whether the channel is ability ready for receiving into front. For example, even when there are change of broadcasting hours and time extension in the middle of a program, it has various advantages -- based on the data, it can be coped with flexibly.

[0039]On the other hand, the control section 21 in the tuner 4 comprises the frequency change drive circuit 24, the channel selection circuit 25, the comparison circuit 26, the memory 27, the timer 22, and CPU28 that carry out drive controlling of these each part, as shown in drawing 4. And if indication signals, such as a channel selection of a channel and a reception request to print out files of a program, are inputted into the light sensing portion 18 from the remote control 6, CPU28 will start operation with the indication signal, and CPU28 will carry out the control drive of each part of the control section 21.

[0040]The control drive of the frequency change drive circuit 24 is carried out by CPU28. This frequency change drive circuit 24 is a drive circuit for switching the received frequency of the channel selection reception means 10. This channel selection circuit 25 in which a control drive is carried out by CPU28 like the frequency change drive circuit 24 the channel selection circuit 25, It is a drive circuit for making the data extraction part 13 extract the data about the program of the channel selected among each data in the sent transponder 7, and making it output to the monitoring device 5.

[0041]The comparison circuit 26 is a circuit for carrying out the comparison reference of the reception program data 7c stored in the reception-program-data storage parts store 14, and the broadcast data 7d by which memory storing was carried out into the data storing part 15. This comparison circuit 26 compares and detects whether storage is carried out into whether it is in the transponder 7 by which the data of that directed channel is received now, and the reception-program-data storage parts store 14, when directions of channel selection are made by operation of the remote control 6. And this detection result is transmitted to CPU28.



[0042]When there is no data of the channel chosen into the transponder 7 received now as a result of this detection, CPU28 switches the frequency of the channel selection reception means 10 using the frequency change drive circuit 24. The broadcast data 7d in the transponder 7 serves as a reference table for enabling collation of a channel and frequency. Therefore, CPU28 searches the broadcast data 7d stored in the data storing part 15, when there is no data of the channel selected into the reception-program-data storage parts store 14. CPU28 detects the radio frequency of the transponder 7 containing the selected channel, and can be received now by this. When there is no broadcast assigned by the channel which cannot receive a program in the inputted channel number, and which was case [ the channel ] namely, inputted, the signal which tells that is transmitted to the monitoring device 5 from CPU28. It is possible to make the monitoring device 5 express a message with a broadcasting electric-wave "unreceivable in the channel" by this for example.

[0043]When there is data of the channel chosen into the transponder 7 received now as a result of detection, CPU28 makes the data extraction part 13 extract the picture image data 7a and the voice data 7b of the channel using the channel selection circuit 25. The selected picture image data 7a and the voice data 7b of a channel are outputted to the monitoring device 5 via the video detection circuit 16 and the sound detector circuit 17 by this, respectively.

[0044]The memory 27 has carried out memory storing of the channel number of the picture image data 7a and the voice data 7b which are made to extract by the control action of each part currently performed by CPU28, for example, the radio frequency and the data extraction part 13 of the channel selection reception means 10, the existence of a reception request to print out files, etc. Also when this memory 27 turns off the tuner 4, the memory of the data of the state before shutting off that power supply is carried out. Therefore, if a power supply is again inputted after the tuner 4 turns off the power, it will rise in the state before turning off the power.

[0045]The remote control 6 for carrying out the control drive of each means of the tuner 4, The channel number input button 29 which consists of the number input button 29a, the cursor button 29b, and the determination button 29c as shown in drawing 5, The button 30 for a screen change for switching a screen within the channel, It has the button 31 for a voice change for switching a sound within the channel, the high viewing-and-listening channel call button 32 for calling the high viewing-and-listening channel turn table 23, and the light-emitting part 33 for transmitting various order signals. As shown in drawing 6, the order signal generating part 35 for generating an order signal based on the power supply battery 34 and the contents operated with each button is built in the remote control 6.

[0046]The high viewing-and-listening channel call button 32 is formed with the one-touch type push button formed in the surface of the remote control 6, When a televiewer wants to call the high viewing-and-listening channel turn table 23 to the

display 8 of the monitoring device 5, the high viewing-and-listening channel turn table 23 is displayed on the display 8 by carrying out pushing operation. That is, if the high viewing-and-listening channel call button 32 is operated and an order signal is transmitted via the light-emitting part 33 from the order signal generating part 35, this order signal will be received by the tuner 4. Then, the contents which counted at the channel counter 19 and were memorized in the tuner 4, The high viewing-and-listening channel turn table 23 created by the tabulation means 20 based on the broadcast data 7d and the clock data 7e which were stored in the data storing part 15 is transmitted to the monitoring device 5 by control of the control section 21. The high viewing-and-listening channel turn table 23 is displayed on the display 8 by this. The televiewer can make the tuner 4 carry out channel selection reception of that channel by directing the arbitrary channels in this high viewing-and-listening channel turn table 23.

[0047]As mentioned above, in the constituted program tuning guide device 1, the data for creating the high viewing-and-listening channel turn table 23 is created, and the operation saved at the channel counter 19 is shown and explained to drawing 7. A televiewer chooses a channel from the high viewing-and-listening channel turn table 23 mentioned later using the number input button 29, and makes the tuner 4 carry out channel selection reception of the arbitrary channels first (Step S1). The picture image data 7a and the voice data 7b of a program which are sent by this channel are outputted to the monitoring device 5 via the video detection circuit 16 and the sound detector circuit 17 by this (Step S2).

[0048]The transponder 7 which contains in the tuner 4 the channel by which channel selection reception is carried out at this time, The reception program data 7c which is data about the program of all the channels sent to the picture image data 7a and the voice data 7b of this program by this transponder 7, It is sent from the broadcasting station 2 in the state where the clock data 7e which is data about the broadcast data 7d which is data about the program information sent by each channel of the broadcasting station 2, and current time was made to superimpose. In the tuner 4, when the transponder 7 sent in this way is received, storage of the required information of the various digital data in this transponder 7 is extracted and carried out (Step S3).

[0049]That is, the tuner 4 extracts the required information of the reception program data 7c in the data extraction part 13, and stores it in the reception-program-data storage parts store 14. The tuner 4 extracts the required information of the broadcast data 7d, and the clock data 7e in the data extraction part 13, and stores them in the data storing part 15. The broadcast data 7d in the transponder 7 sent from the broadcasting station 2 is day about 1 time per of rate, and the contents of the data are updated. The clock data 7e is updated every several seconds. In the tuner 4, when a data content has updating, the updated data is stored in the data storing part 15

(step S4).

[0050] On the other hand, if channel selection reception of a channel starts in this way, CPU28 which it had in the control section 21 of the tuner 4 will monitor this channel by which channel selection reception was carried out (Step S5). That is, CPU28 makes the memory 27 memorize the number of the channel by which channel selection reception was carried out, and drives the timer 22 and makes the receiving time measure (Step S6). And when channel selection reception of this channel exceeds predetermined time (YES), CPU28 transmits that to the channel counter 19 (Step S7). On the other hand, when it is switched to other channels or a power supply is come by off while channel selection reception of this channel did not exceed predetermined time, (NO) and CPU28 resets the timer 22 and suspends the monitor of that channel (Step S8).

[0051] The channel counter 19 will count and (addition) memorize the reception times of the channel, if it is told that channel selection reception of the channel exceeded predetermined time from CPU28 (step S9). In the channel counter 19, carrying-out [exceeding predetermined time / channel selection reception of which channel]—how many times data is stored by this. The high viewing-and-listening channel call button 32 is pushed by the tabulation means 20 by operation of the remote control 6, and so that it may mention later in the case. Based on the data remembered to have mentioned above by the channel counter 19, the high viewing-and-listening channel turn table 23 is created, and this is made to output to the monitoring device 5.

[0052] Next, operation until a televiewer makes the high viewing-and-listening channel turn table 23 which arranged the channel to which it is viewing and listening well in an order from the higher rank output to the monitoring device 5 using the program tuning guide device 1 constituted as mentioned above, Operation until it carries out channel selection reception of the channel from the high viewing-and-listening channel turn table 23 made to output to the monitoring device 5 is shown and explained to drawing 8.

[0053] When the program outputted to the monitoring device 5 does not suit a televiewer's liking at Step S2 mentioned above, a televiewer, It is possible to switch a channel by specifying a desired channel out of the channel which operated the remote control 6, made display the high viewing-and-listening channel turn table 23 on the monitoring device 5, and was displayed. In that case, a televiewer does pushing operation of the high viewing-and-listening channel call button 32 of the remote control 6 first (Step S10). Then, the order signal for displaying the high viewing-and-listening channel turn table 23 on the monitoring device 5 by the order signal generating part 35 of the remote control 6 is generated, and this order signal is transmitted to the tuner 4 from the light-emitting part 33 (Step S11).

[0054] The tuner 4 receives the order signal transmitted from the remote control 6 by the light sensing portion 18, and transmits this to CPU28 of the control section 21

(Step S12). CPU28 carries out the control drive of the channel counter 19 according to this order signal, and makes the data which counted the channel selection reception times for every channel stored in the channel counter 19 transmit to the tabulation means 20 (Step S13). By this, the tabulation means 20 acquires the data about the channel selection reception times stored in the channel counter (Step S14). On the other hand, the tabulation means 20 acquires the broadcast data 7d and the clock data 7e which were stored in the data storing part 15 by control of CPU28 (Step S15).

[0055]The tabulation means 20 creates the high viewing-and-listening channel turn table 23 in order of the following based on each data acquired at Step S14 and Step S15. First, the tabulation means 20 totals the count number for every channel sent from the channel counter 19, arranges a channel with many count numbers in an order from the higher rank of the channel display column 23c of the high viewing-and-listening channel turn table 23, and writes in the channel (Step S16). The number of times of viewing and listening of each channel totaled at this time is written in 23 f of each number-of-times display column of viewing and listening.

[0056]Next, in current time, the tabulation means 20 judges [ ability ready for receiving or ] whether it is improper based on the broadcast data 7d and the clock data 7e which were acquired from the data storing part 15 about each channel (Step S17). For and the reason of broadcast of the day being completed or the contract of a televiewer and the broadcasting station 2 having expired, as a result of judging at Step S17. In current time, "x" is written for reception in the channel of a failure (NO) at 23 d of ready-for-receiving non-display columns of the channel (Step S18). On the other hand, as a result of judging at Step S17, in current time, "it is good" is written in the channel of ability (YES) ready for receiving at 23 d of ready-for-receiving non-display columns of the channel (Step S19).

[0057]Based on the broadcast data 7d acquired at Step S15, the title of the program currently broadcast in current time by each channel is written in the program display column 23e during broadcast of the channel with which the "good" display was made at Step S19 (Step S20). Thus, after the writing of each column of the high viewing-and-listening channel turn table 23 is completed, this high viewing-and-listening channel turn table 23 is transmitted to the monitoring device 5 by control of CPU28, and is displayed on the display 8 of the monitoring device 5 (Step S21). At Step S18, about the channel with which "x" used as the mark of a receive not ready was written in 23 d of ready-for-receiving non-display columns, it is [ that the ranking and the number of times of viewing and listening of ranking are only displayed, and ], and channel selection reception cannot be carried out from this screen.

[0058]A televiewer refers to a channel number of the high viewing-and-listening channel turn table 23, a title of a program, etc. which were displayed on the monitoring

device 5 in this way, When there is a desired channel in the channel with which the mark "good" of ability ready for receiving was displayed on 23 d of ready-for-receiving non-display columns (YES), the cursor button 29b and the determination button 29c of the remote control 6 are used, and the channel is directed (Step S22). When there is no desired channel in the channel displayed on the high viewing-and-listening channel turn table 23, it can return to the screen of the original channel by directing the return section 23h in the high viewing-and-listening channel turn table 23 to (NO) using the remote control 6 (Step S23). The signal of the purport that a channel is switched is transmitted to the tuner 4 from the remote control 6. By this, a control drive is carried out so that the control section 21 may switch the channel selection reception means 10 to the channel (Step S24), and the program sent by the channel of a televiewer's request is outputted to the monitoring device 5 (Step S25).

[0059]Next, the program tuning guide device 51 of a 2nd embodiment of this invention is explained using drawing 17 from drawing 9. As shown in drawing 9, the program tuning guide device 51 like a 1st embodiment, The tuner 54 as a receiving set which receives the broadcasting electric-wave 53 sent by two or more channels from the broadcasting station 52, and tunes in a desired channel from them, It has the monitoring device 55 as a displaying means which displays the program sent by the channel by which channel selection reception was carried out by the tuner 54. As for the tuner 54, it is possible to make it operate with the remote control 56 for performing various operations of channel selection operation, reserving operation, etc.

[0060]As shown in drawing 10, the broadcasting electric-wave 53 sent from the broadcasting station 52 stored various digital data in two or more packets, and is transmitted as the transponder 57 which connected them continuously and was formed. The radio frequency (RF=Radio Frequency) is respectively assigned to this transponder 57, and the tuner 54 can receive one of the transponders 57 sent by adjusting that radio frequency. [ two or more ]

[0061]The picture image data 57a and the voice data 57b of each program for 4-8 channels are contained in each transponder 57. The picture image data 57a is what stored the data about the image of the program for 4-8 channels in one packet. The data for one channel comprises two or more picture data, such as data for displaying the program by a standard screen, and data for making it display on a wide screen. And by choosing the gestalt of a channel and a screen by the tuner 54, the required data in the picture image data 57a is extracted, and it is transmitted to the monitoring device 55. The image of the program currently sent by the channel will be outputted to the display 58 of the monitoring device 55 by this. Like [ this 2nd embodiment ] a 1st embodiment, although the picture image data 57a is stored in one packet, it may be divided and stored in two thru/or the packet beyond it.

[0062]The voice data 57b is what stored the data about the sound of the program for

4-8 channels in one packet. The data for one channel comprises two or more data of the data for making the sound of the program output by a standard voice, the data for making it output by a sub voice, the data for making it output with other languages, etc. And by choosing the gestalt of a channel and a sound by the tuner 54, the required data in the voice data 57b is extracted, and it is transmitted to the monitoring device 55. The sound of the program currently sent by the channel will be outputted to the speaker 59 of the monitoring device 55 by this. Although the voice data 57b is also stored in one packet, it may be divided and stored in two thru/or the packet beyond it. [ as well as the picture image data 57a ]

[0063]The same digital data 57c as the transponder 7 in a 1st embodiment mentioned above to the transponder 57 on the other hand, i.e., reception program data, The broadcast data 57d and the clock data 57e are contained where [ both ] the picture image data 57a and the voice data 57b in the transponder 57 are overlapped.

[0064]The reception program data 57c will be extracted by the data extraction part 63 of the tuner 54 out of the transponder 57, if the transponder 57 is received by the receive section 61 of the channel selection reception means 60 of the tuner 54 via the antenna 62. Memory storing of this extracted reception program data 57c is carried out at the reception-program-data storage parts store 64. The reception program data 57c stored in this reception-program-data storage parts store 64 can call the required information in it to the display 58 of the monitoring device 55 by operation of the remote control 56.

[0065]The broadcast data 57d will be extracted by the data extraction part 63 of the tuner 54 out of the transponder 57, if the transponder 57 is received by the receive section 61 of the channel selection reception means 60 of the tuner 54 via the antenna 62. And memory storing of the extracted broadcast data 57d is carried out at the data storing part 65. The contents of the data of the broadcast data 57d are updated about once per day, for example in the time zone when a televiewer's receiving frequency is low.

[0066]The clock data 57e is data about current time, and is sent in the state where it was updated every several seconds. This clock data 57e will be extracted by the data extraction part 63 of the tuner 54 out of that transponder 57, if the transponder 57 is received by the receive section 61 of the channel selection reception means 60 of the tuner 54 via the antenna 62. And memory storing of the extracted clock data 57e is carried out at the data storing part 65.

[0067]The tuner 54 as a receiving set by specifying a channel number, With the radio frequency corresponding to the channel number, choose the transponder 57 sent from the broadcasting station 52, and it receives, The desired program is displayed on the monitoring device 55 by extracting the data about the program which agreed in the channel number among 4-8 in the transponder 57, and transmitting to the monitoring device 55. The tuner 54 recognizes the televiewer who views and listens to a program

by operation with the remote control 6, The channel by which channel selection reception was carried out exceeding predetermined time for every televiewer is counted, and it has become what has possible displaying on the monitoring device 55 the individual high viewing-and-listening channel turn table 73 which arranged the channel with many the count number in an order from the higher rank. It is a screen which can recognize visually whether it can view and listen to the individual high viewing-and-listening channel turn table 73 displayed on the monitoring device 55 at this time in current time. And the tuner 54 is made to have carried out channel selection reception of the directed channel in the program tuning guide device 51 of a 2nd embodiment by directing arbitrary channels out of the channel to which it can be viewed and listened and which was displayed on the individual high viewing-and-listening channel turn table 73.

[0068]The tuner 54 carries out channel selection reception of the desired channel out of two or more channels of the broadcasting electric-wave 53 sent from the broadcasting station 52, and when it receives the broadcasting electric-wave 53, it has the channel selection reception means 60 which extracts various digital data out of the transponder 57 of the broadcasting electric-wave 53. The receive section 61 which has a function in which this channel selection reception means 60 switches received frequency to the radio frequency which agreed with the specified channel number, It comprises the data extraction part 63 which extracts the required data in the channel which agreed in the specified channel out of two or more channels of the transponder 57 of the broadcasting electric-wave 53 which received in this receive section 61 at any time.

[0069]And the inside of 4-8 in the transponder 57 received by the channel selection reception means 60, The picture image data 57a and the voice data 57b of a channel which were extracted in the data extraction part 63 are transmitted to the monitoring device 55 via the video detection circuit 66 and the sound detector circuit 67, respectively from the channel selection reception means 60. The program of the channel tuned in with the channel selection receiving set 60 is displayed on the monitoring device 55 by this. The data extraction part 63 extracts not only extraction of the picture image data 57a in the transponder 57, and the voice data 57b but other digital information, and is transmitting it to the reception-program-data storage parts store 64 or the data storing part 65.

[0070]The light sensing portion 68 which receives the order signal according [ the tuner 54 ] to the infrared signal from the remote control 56, The ID recognition part 69 as an identification device which identifies the televiewer who views and listens to a program based on the signal inputted into the light sensing portion 68, The channel counter 70 as a memory measure which counts and memorizes the channel by which channel selection reception was carried out exceeding predetermined time by the channel selection reception means 60 according to a televiewer, A tabulation means

71 to create the individual high viewing-and-listening channel turn table 73 which arranged the count number of the channel selection receiving channel in an order from the higher rank based on the data content according to televiewer remembered by the channel counter 70, It has the control section 72 which carries out the control drive of each part of the tuner 54 with the order signal inputted into the light sensing portion 68.

[0071]The light sensing portion 68 serves as a means to receive the order signal by the infrared signal generated with the remote control 56. The order signal received by this light sensing portion 68 is inputted into the control section 72. By acquiring this order signal, the control section 72 carries out the control drive of each part. The ID recognition part 69 is a thing for reading this signal and specifying a televiewer, if the signal for ID recognition generated with the remote control 56 by performing operation for specifying a televiewer is inputted into the light sensing portion 68. The ID recognition part 69 will transmit that to the control section 72, if the signal for ID recognition is received.

[0072]After the channel counter 70 recognizes a televiewer with the specific ID recognition part 69, When the channel selection reception means 60 receives a specific channel exceeding predetermined time by the same televiewer's channel selection, the channel serves as a memory measure which counts individually that channel selection reception was carried out, and memorizes it by the televiewer. That is, the control section 72 recognizes the televiewer identified by the ID recognition part 69. Simultaneously with it, the channel number which is carrying out channel selection reception by the channel selection reception means 60 is monitored, and the timer 74 (refer to drawing 12) provided with the receiving time in the control section 72 is made to measure. And the control section 72 transmits that to the channel counter 70, when channel selection reception of the specific channel is done by the specific televiewer exceeding predetermined time. By this, the channel counter 70 counts and memorizes the channel number in which channel selection reception was done by the specific televiewer for every televiewer and every channel.

[0073]The contents counted and memorized at this channel counter 70 are transmitted to the tabulation means 71. And the tabulation means 71 creates the individual high viewing-and-listening channel turn table 73 as shown in drawing 11 based on the contents which counted individually and were memorized for every televiewer at the channel counter 70. That is, this individual high viewing-and-listening channel turn table 73 is being created based on the contents which counted, respectively and were memorized for every televiewer, respectively. When the tabulation means 71, on the other hand, creates the individual high viewing-and-listening channel turn table 73, Each data of the broadcast data 57d used as the data about the program information sent by the clock data 57e and each channel used as the data about the current time extracted from the transponder 57 is



acquired from the data storing part 65. That is, the tabulation means 71 creates the individual high viewing-and-listening channel turn table 73 based on the clock data 57e and the broadcast data 57d which were stored in the individual data and the data storing part 65 which were counted and memorized at the channel counter 70.

[0074]For this reason, the broadcasting hours of a program to which the individual high viewing-and-listening channel turn table 73 is sent by each channel, and the ability ready for receiving / improper information in current time on each channel was being reflected. By operating it using the remote control 56 and making the control section 72 drive, the individual high viewing-and-listening channel turn table 73 created in this way is sent to the monitoring device 55 from the tabulation means 71, and is displayed on the display 58 of the monitoring device 55.

[0075]The individual high viewing-and-listening channel turn table 73 is what arranged the channel with many count numbers which carried out channel selection reception in the day of the week with a certain televiewer in an order from the higher rank, as shown in drawing 11. This individual high viewing-and-listening channel turn table 73 The selection column 73a and the ranking column 73b, It has the program display column 73e, 73 f of number-of-times display columns of viewing and listening and the page turning-over selecting part 73g, the return section 73h for returning to the original screen, and the televiewer indicator 73j during broadcast with the channel display column 73c and 73 d of ready-for-receiving non-display columns. And this individual high viewing-and-listening channel turn table 73, It is displayed on the monitoring device 55 in the state ability ready for receiving or where it can be recognized visually for every channel whether it is improper visually in current time, and the tuner 54 is made to have carried out channel selection reception of the directed channel by directing arbitrary channels out of the channel in which the viewing and listening is possible.

[0076]The selection column 73a located in the leftmost of this individual high viewing-and-listening channel turn table 73 is a thing in order to choose and specify the channel for which a televiewer asks, and the arrow type cursor 73k is movable up and down about the inside of the space of the plurality in this column by operation of the remote control 56. And when there is a channel for which it asks in the individual high viewing-and-listening channel turn table 73, a televiewer. By doubling within the limit which directs the channel which asks for the cursor 73k, and pushing the determination button 80c (refer to drawing 13) of the remote control 56, It is possible to switch the selection reception means 60 to the channel, to display on the display 58 the program currently sent by the channel, and to view and listen.

[0077]The column located in the right-hand of the selection column 73a is the ranking column 73b, and order with many selection reception times, i.e., the ranking from the 1st place to the 10th place, is shown. If the cursor 73k is doubled and directed to the page turning-over selecting part 73g described as "NEXT PAGE" located in the table

bottom shown in this drawing 11, the channel by which ranking was carried out by the 20th place from the following ranking, i.e., the 11th place, will be displayed on the high viewing-and-listening channel turn table 73. When there is no following ranking, the display of "NEXT PAGE" of this page turning-over selecting part 73g was not displayed, and is come.

[0078]The column located in the right-hand of the ranking column 73b is the channel display column 73c for expressing a channel number. The columns of the right-hand are [ whether the channel displayed on the channel display column 73c in current time is improper in ability ready for receiving, and ] 73 d of ready-for-receiving non-display columns for a televiewer to recognize visually. That channel can recognize [ ability ready for receiving or ] visually whether it is improper in current time by a televiewer's making 73 d of this ready-for-receiving non-display column contrast with the channel display column 73c, and seeing.

[0079]During the broadcast which displayed the title of the program under present broadcast on the right-hand of 73 d of ready-for-receiving non-display columns by the channel, the program display column 73e, 73 f of number-of-times display columns of viewing and listening showing a certain televiewer's number of times of viewing and listening in the prescribed period (setting to drawing 11 'for three months of 98.4 - 6) of the channel are provided in right-hand. The return section 73h for stopping the display of this individual high viewing-and-listening channel turn table 73, and returning to the original channel is formed in the lower part of this table. In drawing 11, the televiewer indicator 73j for displaying the "user number" used as a televiewer's registration number is formed in the upper part. It may be made for this televiewer indicator 73j to display that registered name by registering a televiewer's own name in written form by operation of the remote control 6.

[0080]As mentioned above, the program tuning guide device 51 of a 2nd embodiment counts the reception times for every [ in the tuner 54 ] channel, and it not only arranges it in order with many reception times, but it serves as a table which counted the reception times according to the televiewer. Since the individual high viewing-and-listening channel turn table 73 is created based on the broadcast data 57d and the clock data 57e which are sent from the broadcasting station 52, it can be made to indicate whether the channel is ability ready for receiving in current time. For example, even when there are change of broadcasting hours and time extension in the middle of a program, it has various advantages -- based on the data, it can be coped with flexibly. Based on the digital data sent from the broadcasting station 52, in current time, that channel is not limited to what indicates [ ability ready for receiving or ] whether it is improper, but may only create the individual high viewing-and-listening channel turn table 73 especially in this 2nd embodiment.

[0081]On the other hand, the control section 72 in the tuner 54 comprises the frequency change drive circuit 75, the channel selection circuit 76, the comparison

circuit 77, the memory 78, the timer 74, and CPU79 that carry out drive controlling of these each part, as shown in drawing 12. And if various indication signals, such as a signal for making a televiewer identify, a channel selection of a channel, a reception request to print out files of a program, are inputted into the light sensing portion 68 from the remote control 56, CPU79 will start operation with the indication signal, and CPU79 will carry out the control drive of each part of the control section 72.

[0082]The control drive of the frequency change drive circuit 75 is carried out by CPU79. This frequency change drive circuit 75 is a drive circuit for switching the received frequency of the channel selection reception means 60. This channel selection circuit 76 in which a control drive is carried out by CPU79 like the frequency change drive circuit 75 the channel selection circuit 76, It is a drive circuit for making the data extraction part 63 extract the data about the program of the channel selected among each data in the sent transponder 57, and making it output to the monitoring device 55.

[0083]The comparison circuit 77 is a circuit for carrying out the comparison reference of the reception program data 57c stored in the reception-program-data storage parts store 64, and the broadcast data 57d by which memory storing was carried out into the data storing part 65. This comparison circuit 77 compares and detects whether storage is carried out into whether it is in the transponder 57 by which the data of that directed channel is received now, and the reception-program-data storage parts store 64, when directions of channel selection are made by operation of the remote control 56. And this detection result is transmitted to CPU79.

[0084]When there is no data of the channel chosen into the transponder 57 received now as a result of this detection, CPU79 switches the frequency of the channel selection reception means 60 using the frequency change drive circuit 75. The broadcast data 57d in the transponder 57 serves as a reference table for enabling collation of a channel and frequency. Therefore, CPU79 searches the broadcast data 57d stored in the data storing part 65, when there is no data of the channel selected into the reception-program-data storage parts store 64. CPU79 detects the radio frequency of the transponder 57 containing the selected channel, and can be received now by this. When there is no broadcast assigned by the channel which a program cannot receive in the inputted channel number, and which was case [ the channel ] namely, inputted, the signal which tells that is transmitted to the monitoring device 55 from CPU79. It is possible to make the monitoring device 55 express a message with a broadcasting electric-wave "unreceivable in the channel" by this for example.

[0085]When there is data of the channel chosen into the transponder 57 received now as a result of detection, CPU79 makes the data extraction part 63 extract the picture image data 57a and the voice data 57b of the channel using the channel selection circuit 76. The selected picture image data 57a and the voice data 57b of a channel are outputted to the monitoring device 55 via the video detection circuit 66 and the

sound detector circuit 67 by this, respectively.

[0086]The control action of each part to which the memory 78 is performed by CPU79, For example, memory storing of the channel number of the picture image data 57a and the voice data 57b which are made to extract in the radio frequency and the data extraction part 63 of the data which identified the viewer who is viewed and listening to a program, or the channel selection reception means 60, the existence of a reception request to print out files, etc. has been carried out. Also when this memory 78 turns off the tuner 54, the memory of the data of the state before shutting off that power supply is carried out. Therefore, if a power supply is again inputted after the tuner 54 turns off the power, it will rise in the state before turning off the power.

[0087]The remote control 56 for carrying out the control drive of each means of the tuner 54, The channel number input button 80 which consists of the number input button 80a, the cursor button 80b, and the determination button 80c as shown in drawing 13, The button 81 for a screen change for switching a screen within the channel, The button 82 for a voice change for switching a sound within the channel, It has the viewer input button 83 for making the tuner 54 recognize a viewer, the high viewing-and-listening channel call button 84 for calling the individual high viewing-and-listening channel turn table 73, and the light-emitting part 85 for transmitting various order signals. As shown in drawing 14, the order signal generating part 87 for generating an order signal based on the power supply battery 86 and the contents operated with each button is built in the remote control 56.

[0088]The viewer input button 83 is formed with the one-touch type push button formed in the surface of the remote control 56. A push on this viewer input button 83 will display a message, such as "please input a user number", on the display 58 of the monitoring device 55 like drawing 15. According to this message, when a viewer inputs his user number (number for identifying a viewer), the signal for recognizing a viewer from the remote control 56 is transmitted to the tuner 54. By this, the tuner 54 can identify now the viewer who views and listens to a program. As mentioned above, it constituted from a 2nd embodiment, but it is not limited to this composition, two or more viewer input buttons 83 are formed, for example, and it may be made to transmit the signal for making a viewer recognize direct by one-touch, respectively. When inputting the tuner 54 and the power supply of the monitoring device 55, after certainly going via the screen shown in drawing 15, it may constitute so that a channel input may be made possible.

[0089]The high viewing-and-listening channel call button 84 is a button for displaying the individual high viewing-and-listening channel turn table 73 used as the viewer's original race card on the monitoring device 55, after making a viewer recognize with the viewer input button 83. This high viewing-and-listening channel call button 84 is formed with the one-touch type push button formed in the surface of the remote control 56, and when a viewer wants to call the individual high

viewing-and-listening channel turn table 73 to the display 58 of the monitoring device 55, it is a thing for carrying out pushing operation. That is, if the high viewing-and-listening channel call button 84 is operated and an order signal is transmitted via the light-emitting part 85 from the order signal generating part 87, this order signal will be received by the tuner 54.

[0090]Then, the contents counted and memorized by the channel counter 70 according to the televiewer in the tuner 54, The individual high viewing-and-listening channel turn table 73 created by the tabulation means 71 based on the broadcast data 57d and the clock data 57e which were stored in the data storing part 65 is transmitted to the monitoring device 55 by control of the control section 72. The individual high viewing-and-listening channel turn table 73 is displayed on the display 58 by this. The televiewer can make the tuner 54 carry out channel selection reception of that channel by directing the arbitrary channels in this individual high viewing-and-listening channel turn table 73.

[0091]The data for creating the individual high viewing-and-listening channel turn table 73 for each televiewers by monitoring the channel which made recognize the televiewer who views and listens to a program to the tuner 54 in the program tuning guide device 51 constituted as mentioned above, and was received is created, The operation saved at the channel counter 70 is shown and explained to drawing 16.

[0092]First, when a televiewer views and listens to a program, he operates the televiewer input button 83 first, and transmits the signal for televiewer discernment to the tuner 54 (Step S31). Then, the signal for this televiewer discernment is inputted into the tuner 4 (Step S32). By this, the light sensing portion 68 of the tuner 4 receives this signal, and transmits to the ID recognition part 69. The ID recognition part 69 recognizes this signal, recognizes the televiewer of a program, and tells that to the control section 72 (Step S33). The televiewer identified by the tuner 54 chooses a channel from the individual high viewing-and-listening channel turn table 73 mentioned later using the number input button 80, and makes the tuner 54 carry out channel selection reception of the arbitrary channels from this state (Step S34). The picture image data 57a and the voice data 57b of a program which are sent by the channel in which channel selection reception was done by the identified televiewer are outputted to the monitoring device 55 via the video detection circuit 66 and the sound detector circuit 67 by this (Step S35).

[0093]The transponder 57 containing the channel received by the tuner 54 at this time, The reception program data 57c which is data about the program of all the channels sent to the picture image data 57a and the voice data 57b of this program by this transponder 57, It is sent from the broadcasting station 52 in the state where the clock data 57e which is data about the broadcast data 57d which is data about the program information sent by each channel of the broadcasting station 52, and current time was made to superimpose. In the tuner 54, when the transponder 57 sent in this

way is received, storage of the required information of the various digital data in this transponder 57 is extracted and carried out (Step S36).

[0094]That is, the tuner 54 extracts the required information of the reception program data 57c in the data extraction part 63, and stores it in the reception-program-data storage parts store 64. The tuner 54 extracts the required information of the broadcast data 57d, and the clock data 57e in the data extraction part 63, and stores them in the data storing part 65. The broadcast data 57d in the transponder 57 sent from the broadcasting station 52 is day about 1 time per of rate, and the contents of the data are updated. The clock data 57e is updated every several seconds. In the tuner 54, when a data content has updating, the updated data is stored in the data storing part 65 (Step S37).

[0095]On the other hand, if channel selection reception of a channel starts in this way, CPU79 which it had in the control section 72 of the tuner 54 will monitor this channel by which channel selection reception was carried out (Step S38). That is, CPU79 makes the memory 78 memorize the number of the channel in which channel selection reception was done by the identified viewer, and drives the timer 74 and makes the receiving time measure (Step S39). And when channel selection reception of this channel exceeds predetermined time (YES), CPU79 transmits that to the channel counter 70 (Step S40). On the other hand, while channel selection reception of this channel does not exceed predetermined time, are switched to other channels, or, Or when a viewer's registration is changed or a power supply is further come by off, (NO) and CPU79 resets the timer 74 and suspends the monitor of the channel (Step S41).

[0096]The channel counter 70 will count and (addition) memorize the reception times of the channel in the viewer, if it is told that channel selection reception of the specific channel by a specific viewer exceeded predetermined time from CPU79 (Step S42). By this, the data of channel selection reception of which channel was carried out how many times exceeding predetermined time is stored by which viewer in the channel counter 70. The high viewing-and-listening channel call button 84 is pushed by the tabulation means 71 by operation of the remote control 56, and so that it may mention later in the case. The individual high viewing-and-listening channel turn table 73 is created, and this is made to output to the monitoring device 55 based on the data content according to viewer remembered to have mentioned above by the channel counter 70.

[0097]Next, operation until a specific viewer makes the individual high viewing-and-listening channel turn table 73 which arranged the channel to which it is viewing and listening well in an order from the higher rank output to the monitoring device 55 using the program tuning guide device 51 constituted as mentioned above, The operation for choosing a channel from the screen displayed on the monitoring device 55 is shown and explained to drawing 17.

[0098]When the program outputted to the monitoring device 55 does not suit the televiewer's liking at Step S34 mentioned above, a televiewer, It is possible to switch a channel by specifying a desired channel out of the channel which operated the remote control 56, made display the individual high viewing-and-listening channel turn table 73 on the monitoring device 55, and was displayed. In that case, a televiewer does pushing operation of the high viewing-and-listening channel call button 84 of the remote control 56 first (Step S43). Then, in the order signal generating part 87 of the remote control 56, the order signal for displaying on the monitoring device 55 the individual high viewing-and-listening channel turn table 73 for televiewers identified by the ID recognition part 69 is generated, and this order signal is transmitted to the tuner 54 from the light-emitting part 85 (Step S44).

[0099]The tuner 54 receives the order signal transmitted from the remote control 56 by the light sensing portion 68, and transmits this to CPU79 of the control section 72 (Step S45). CPU79 carries out the control drive of the channel counter 70 according to this order signal, The data about the televiewer under [ out of the data which counted the channel selection reception times for every channel according to televiewer stored in the channel counter 70 ] present discernment is made to transmit to the tabulation means 71 (Step S46). By this, the tabulation means 71 acquires the data about the channel selection reception times in the televiewer under present discernment stored in the channel counter 70 (Step S47). On the other hand, the tabulation means 71 acquires the broadcast data 57d and the clock data 57e which were stored in the data storing part 65 by control of CPU79 (Step S48).

[0100]The tabulation means 71 creates the individual high viewing-and-listening channel turn table 73 for the televiewers under present discernment in the following order based on each data acquired at Step S47 and Step S48. First, the tabulation means 71 totals the count number for every channel sent from the channel counter 70, In this televiewer, a channel with many count numbers is arranged in an order from the higher rank of the channel display column 73c of the individual high viewing-and-listening channel turn table 73, and that channel is written in (Step S49). The number of times of viewing and listening of each channel totaled at this time is written in 73 f of each number-of-times display column of viewing and listening.

[0101]Next, in current time, the tabulation means 71 judges [ ability ready for receiving or ] whether it is improper based on the broadcast data 57d and the clock data 57e which were acquired from the data storing part 65 about each channel (Step S50). For and the reason of broadcast of the day being completed or the contract of a televiewer and the broadcasting station 52 having expired, as a result of judging at Step S50. In current time, "x" is written for reception in the channel of a failure (NO) at 73 d of ready-for-receiving non-display columns of the channel (Step S51). On the other hand, as a result of judging at Step S50, in current time, "it is good" is written in the channel of ability (YES) ready for receiving at 73 d of ready-for-receiving

non-display columns of the channel (Step S52).

[0102]Based on the broadcast data 57d acquired at Step S48, the title of the program currently broadcast in current time by each channel is written in the program display column 73e during broadcast of the channel with which the "good" display was made at Step S52 (Step S53). Thus, after the writing of each column of the individual high viewing-and-listening channel turn table 73 is completed, this individual high viewing-and-listening channel turn table 73 is transmitted to the monitoring device 55 by control of CPU79, and is displayed on the display 58 of the monitoring device 55 (Step S54). At Step S51, about the channel with which "x" used as the mark of a receive not ready was written in 73 d of ready-for-receiving non-display columns, it is [ that the ranking and the number of times of viewing and listening of ranking are only displayed, and ], and channel selection reception cannot be carried out from this screen.

[0103]A televiewer refers to a channel number of the individual high viewing-and-listening channel turn table 73, a title of a program, etc. which were displayed on the monitoring device 55 in this way, When a desired channel is in the displayed channel (YES), the cursor button 80b and the determination button 80c of the remote control 56 are used, and the channel is directed (Step S55). When there is no desired channel, in the channel displayed on the individual high viewing-and-listening channel turn table 73 to (NO). It can return to the screen of the original channel by directing the return section 73h in the individual high viewing-and-listening channel turn table 73 using the remote control 56 (Step S56).

[0104]If Step S55 is operated, the signal of the purport that a channel is switched will be transmitted to the tuner 54 from the remote control 56. By this, a control drive is carried out so that the control section 72 may switch the channel selection reception means 60 to the channel (Step S57), and the program sent by the channel of a televiewer's request is outputted to the monitoring device 55 (Step S58).

[0105]The program tuning guide devices 1 and 51 of each embodiment were constituted as mentioned above, respectively, but they can be variously changed in the range which does not deviate from the gist of this invention. For example, when the channel which the televiewer tuned in is received in each embodiment mentioned above exceeding predetermined time, Although the receiving frequency of a channel is detected and he is trying to create high viewing-and-listening channel turn individual high viewing-and-listening channel turn Table 23 and 73 based on this data by counting using the channel counters 19 and 70, For example, it may constitute so that the receiving time of a channel may be measured simply and ranking may be formed by this receiving time.

[0106]Although it is made to display in the program tuning guide devices 1 and 51 of each embodiment in the state where you made it intermingled so that a televiewer can recognize a receivable channel and an improper channel visually in current time,



respectively to high viewing-and-listening channel turn individual high viewing-and-listening channel turn Table 23 and 73, It may be made to make it display in the state where it deleted about the unreceivable channel.

[0107]

[Effect of the Invention]According to the invention given in claims 1, 2, 3, and 4, since a televiewer can recognize visually whether it is ability ready for receiving in current time, the channel displayed all over the high viewing-and-listening channel ranking table, It becomes possible to tune in a channel receivable out of the displayed channel only by displaying a high viewing-and-listening channel ranking table on a displaying means, and channel operation will become easier for a televiewer.

[0108]In order not to count [ according to the invention given in claims 1 and 3 ] as the number of times of a channel selection in the channel selection reception below predetermined time, There is no volition to which it views and listens, and only the case of only turning the channel is not added but it becomes a program tuning guide device which can form a more real high viewing-and-listening channel turn table.

[0109]Since it was made to display on a displaying means the thing in the state where the thing of the receive not ready was deleted from the high viewing-and-listening channel turn table in current time according to the invention given in claims 3 and 4, A televiewer becomes a high program tuning guide device of the convenience which the problem of choosing the thing of a receive not ready accidentally does not produce.

[0110]Since it can have an individual high viewing-and-listening channel turn table with a thing with each televiewer only for itself according to the invention according to claim 5, liking of it can be made to reflect in an individual high viewing-and-listening channel turn table thoroughly. Therefore, the convenience at the time of a channel tuning in for each televiewer serves as a very high program tuning guide device.

[0111]According to the invention according to claim 6, since the channel displayed all over the individual high viewing-and-listening channel ranking table can recognize visually whether it is ability ready for receiving in current time, channel operation will become easier for a televiewer. Since it is possible to change into the state where the channel of the receive not ready was deleted in current time, and for a televiewer to be able to recognize only a receivable channel visually, and to tune in according to the invention according to claim 7, A televiewer becomes a high program tuning guide device of the convenience which the problem of choosing the thing of a receive not ready accidentally does not produce.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is a block diagram showing the whole program tuning guide device outline structure of a 1st embodiment of this invention.

[Drawing 2] It is a mimetic diagram showing the internal structure of the broadcasting electric-wave sent from a broadcasting station to the tuner of the program tuning guide device shown in drawing 1.

[Drawing 3] It is a figure showing an example of the high viewing-and-listening channel turn table displayed on the monitoring device of the program tuning guide device shown in drawing 1.

[Drawing 4] It is a block diagram mainly showing the control section of the program tuning guide device shown in drawing 1.

[Drawing 5] It is a perspective view showing typically the whole program tuning guide device shown in drawing 1.

[Drawing 6] It is a block diagram showing the internal structure of the remote control of the program tuning guide device shown in drawing 5.

[Drawing 7] It is a flow chart figure showing the operation at the time of creating the data for creating a high viewing-and-listening channel turn table using the program tuning guide device of a 1st embodiment of this invention.

[Drawing 8] It is a flow chart figure showing the operation at the time of displaying a high viewing-and-listening channel turn table on a monitoring device using the program tuning guide device of a 1st embodiment of this invention, and carrying out channel selection reception of the channel using the displayed high viewing-and-listening channel turn table.

[Drawing 9] It is a block diagram showing the whole program tuning guide device outline structure of a 2nd embodiment of this invention.

[Drawing 10] It is a mimetic diagram showing the internal structure of the broadcasting electric-wave sent from a broadcasting station to the tuner of the program tuning guide device shown in drawing 9.

[Drawing 11] It is a figure showing an example of the individual high viewing-and-listening channel turn table displayed on the monitoring device of the program tuning guide device shown in drawing 9.

[Drawing 12] It is a block diagram mainly showing the control section of the program tuning guide device shown in drawing 9.

[Drawing 13] It is a perspective view showing typically the whole program tuning guide device shown in drawing 9.

[Drawing 14] It is a block diagram showing the internal structure of the remote control of the program tuning guide device shown in drawing 13.

[Drawing 15] It is a figure showing the example on which the initial screen format for making a televiewer identify was displayed in the monitoring device of the program tuning guide device shown in drawing 9.

[Drawing 16] It is a flow chart figure showing the operation at the time of creating the

data for creating an individual high viewing-and-listening channel turn table using the program tuning guide device of a 2nd embodiment of this invention.

[Drawing 17] It is a flow chart figure showing the operation at the time of displaying an individual high viewing-and-listening channel turn table on a monitoring device using the program tuning guide device of a 2nd embodiment of this invention, and carrying out channel selection reception of the channel using the displayed individual high viewing-and-listening channel turn table.

[Description of Notations]

- 1 Program tuning guide device
- 2 Broadcasting station
- 3 Broadcasting electric-wave
- 4 Tuner (receiving set)
- 5 Monitoring device (displaying means)
- 6 Remote control (controller)
- 7c Broadcast program data
- 7 d Broadcast data (data about the information on the program sent by each channel)
- 7e Clock data (data about current time)
- 10 Channel selection reception means
- 13 Broadcast-program-data reading part
- 14 Program data storage parts store
- 15 Data storing part
- 16 Program lock input button (program lock input part)
- 17 Channel selection reception means
- 19 Channel counter (memory measure)
- 20 Tabulation means
- 23 High viewing-and-listening channel turn table
- 51 Program tuning guide device
- 54 Tuner (receiving set)
- 55 Monitoring device (displaying means)
- 60 Channel selection reception means
- 69 ID recognition part (identification device)
- 70 Channel counter (memory measure)
- 71 Tabulation means
- 73 Individual high viewing-and-listening channel turn table

## PATENT ABSTRACTS OF JAPAN

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(21)Application number : 10-261976 (71)Applicant : FUNAI ELECTRIC CO LTD  
FUNAI ELECTRIC ENG CO LTD

(22)Date of filing : 16.09.1998 (72)Inventor : HAMAZAKI TADASHI

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(54) PROGRAM SELECTION STATION GUIDE DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a program selection station guide device, capable of visually recognizing whether or not reception is possible and indicates a receivable channel among displayed channels.

SOLUTION: This program selection station guide device 1 is provided with a reception device 4, equipped with a selecting station and receiving means 10 which receives a broadcast radio wave sent from a broadcasting station and selects and receives a channel out of it, and also extracts data regarding the current time and data regarding program information sent through respective channels from the broadcasting radio wave, a data storage part 15 storing the respective extracted data and a table generation part 20 which generates a high-audience-rated channel order table, showing whether or not reception is possible for every channel at the present time

based on data stored in a channel counter 19 counting and storing selected and received channels and data stored in a data storage part 14 and with a display means 5. An arbitrary channel from among the channels displayed in the high-audience-rating channel order table is displayed to select the station and receive it.

#### **\* NOTICES \***

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

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#### **CLAIMS**

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[Claim(s)]

[Claim 1]Have with a receiving set and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with the above-mentioned receiving set characterized by comprising the following, and. Based on each data stored in the above-mentioned data storing part, it displays on the above-mentioned displaying means in the state where it can be recognized visually whether it is [ table / above-mentioned / quantity viewing-and-listening channel turn ] improper in ability ready for receiving in current time for every channel visually, A program tuning guide device which carries out carrying out channel selection reception of the directed channel to the above-mentioned receiving set with the feature by directing arbitrary channels out of a channel in which the viewing and listening is possible.

A channel selection reception means which channel selection reception of the desired channel is carried out out of two or more channels, and extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received.

A data storing part which carries out memory storing of each data extracted by the above-mentioned channel selection reception means.

A memory measure which counts and memorizes the above-mentioned channel by which channel selection reception was carried out exceeding predetermined time by

the above-mentioned channel selection reception means.

A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with many count numbers by which channel selection reception was carried out by the above-mentioned channel selection reception means based on contents memorized by this memory measure in an order from a higher rank.

[Claim 2] Have a receiving set and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with the above-mentioned receiving set characterized by comprising the following, and. Based on each data stored in the above-mentioned data storing part, it displays on the above-mentioned displaying means in the state where it can be recognized visually whether it is [ table / above-mentioned / quantity viewing-and-listening channel turn ] improper in ability ready for receiving in current time for every channel visually, A program tuning guide device which carries out carrying out channel selection reception of the directed channel to the above-mentioned receiving set with the feature by directing arbitrary channels out of a channel in which the viewing and listening is possible.

A channel selection reception means which channel selection reception of the desired channel is carried out out of two or more channels, and extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received.

A data storing part which carries out memory storing of each data extracted by the above-mentioned channel selection reception means.

A memory measure which counts and memorizes receiving time by which channel selection reception was carried out for every channel by the above-mentioned channel selection reception means.

A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with long receiving time by which channel selection reception was carried out by the above-mentioned channel selection reception means based on contents memorized by this memory measure in an order from a higher rank.

[Claim 3] Have a receiving set and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with the above-mentioned receiving set characterized by comprising the following, and. Based on each data stored in the above-mentioned data storing part, the above-mentioned quantity viewing-and-listening channel turn table is displayed on the above-mentioned displaying means, where a channel of a receive not ready is deleted in current time, A program tuning guide device which carries out carrying out channel selection reception of that directed channel to the above-mentioned receiving set with the feature by directing arbitrary channels out of a channel displayed on this

displaying means.

A channel selection reception means which channel selection reception of the desired channel is carried out out of two or more channels, and extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received.

A data storing part which carries out memory storing of each data extracted by the above-mentioned channel selection reception means.

A memory measure which counts and memorizes the above-mentioned channel by which channel selection reception was carried out exceeding predetermined time by the above-mentioned channel selection reception means.

A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with many count numbers by which channel selection reception was carried out by the above-mentioned channel selection reception means based on contents memorized by this memory measure in an order from a higher rank.

[Claim 4] Have a receiving set and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with the above-mentioned receiving set characterized by comprising the following, and. Based on each data stored in the above-mentioned data storing part, the above-mentioned quantity viewing-and-listening channel turn table is displayed on the above-mentioned displaying means, where a channel of a receive not ready is deleted in current time, A program tuning guide device which carries out carrying out channel selection reception of that directed channel to the above-mentioned receiving set with the feature by directing arbitrary channels out of a channel displayed on this displaying means.

A channel selection reception means which channel selection reception of the desired channel is carried out out of two or more channels, and extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received.

A data storing part which carries out memory storing of each data extracted by the above-mentioned channel selection reception means.

A memory measure which counts and memorizes receiving time by which channel selection reception was carried out for every channel by the above-mentioned channel selection reception means.

A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with long receiving time by which channel selection reception was carried out by the above-mentioned channel selection reception means based on contents memorized by this memory measure in an order from a higher rank.

[Claim 5] Have a receiving set and a displaying means which displays a program sent

by a channel by which channel selection reception was carried out with the above-mentioned receiving set characterized by comprising the following, and. A program tuning guide device which carries out carrying out channel selection reception of that directed channel to the above-mentioned receiving set with the feature by directing arbitrary channels out of a channel which displayed the above-mentioned individual high viewing-and-listening channel turn table on the above-mentioned displaying means, and was displayed on this displaying means.

A channel selection reception means for carrying out channel selection reception of the desired channel out of two or more channels.

An identification device for making a televiewer who views and listens to a program sent by the above-mentioned channel identify.

A memory measure which counts and memorizes a channel by which channel selection reception was carried out according to the above-mentioned televiewer by the above-mentioned channel selection reception means.

A tabulation means to create an individual high viewing-and-listening channel turn table which arranged a channel with many receiving conditions by which channel selection reception was carried out by the above-mentioned channel selection reception means based on a data content according to televiewer remembered by this memory measure in an order from a higher rank for every televiewer.

[Claim 6]By displaying said individual high viewing-and-listening channel turn table on said displaying means in the state ability ready for receiving or where it can be recognized visually for every channel whether it is improper visually in current time, and directing arbitrary channels out of a channel in which the viewing and listening is possible, The program tuning guide device according to claim 5 which carries out carrying out channel selection reception of the directed channel to said receiving set with the feature.

[Claim 7]By directing arbitrary channels out of a channel which said individual high viewing-and-listening channel turn table was displayed on said displaying means where a channel of a receive not ready is deleted in current time, and was displayed on this displaying means, The program tuning guide device according to claim 5 which carries out carrying out channel selection reception of the directed channel to said receiving set with the feature.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]



[Field of the Invention]This invention is used, for example for multi-channel broadcasting systems, such as satellite broadcasting and CATV (cable television) broadcast, and relates to a suitable program tuning guide device.

[0002]

[Description of the Prior Art]In television broadcasting in recent years, what has the dramatically large numbers of channels is spreading like satellite broadcasting or CATV (cable television) broadcast, for example. In such multi-channel broadcasting, the program of various genres is broadcast from each channel, While a televiewer becomes possible [ choosing the high program of the expert doubled with the individual's idea from the a large number channels ] and his convenience is improving by leaps and bounds, he has the fault that operation of searching those channels becomes complicated.

[0003]The device for a televiewer to search conventionally the channel for which self asks easily that such a fault should be canceled is examined variously. For example, the storage parts store provided with the number of times of a channel selection of the channel which the televiewer tuned in in the device is made to memorize the program tuning device indicated to JP,7-15677,A, it is arranged in an order with much number of times of a channel selection based on the memorized data, and is displayed on the screen. According to this device, operation in particular of registration etc. is not needed but that channel selection operation counts as the number of times of a channel selection automatically only by a televiewer tuning in a channel. And it is totaled automatically, and the counted data is displayed on a screen, when a televiewer operates it. Therefore, the televiewer can call easily a channel with high viewing-and-listening frequency to a screen, and it becomes possible to switch a channel simply only by directing it on a screen.

[0004]

[Problem(s) to be Solved by the Invention]However, in the device mentioned above, the case where the channel displayed by a televiewer's operation on the screen cannot choose depending on time arises. That is, it is because there is also a channel which is not broadcast depending on time for there to be also a thing [ with / the thing of broadcast ] without that right for 24 hours, and for a televiewer view and listen with some channel. In such a case, supposing the channel in which the televiewer made operation selection, for example is a channel which is not broadcast in the current time, a televiewer, Operation which once returns to the screen which displays the race card arranged in order of the channel with much [ again ] number of times of a channel selection is carried out, It will be carried out by directing the channel of further others whether other channels are called, or the number of the channel under broadcast is inputted direct and the channel under broadcast is called. However, also when reinputting a channel, after investigating whether the channel is [ \*\*\*\*\* ] under broadcast in a race card etc., it will be necessary to input, and the problem of

applying to convenience will arise.

[0005] For some viewers, the family structure member etc. may be using the TV receiver in collaboration with two or more persons, and the viewing time of the television in each viewer usually shows dispersion. Therefore, among each viewer, there is no opportunity to watch television not much, therefore a person with little number of times of a channel selection is also. Nevertheless, in order that the number of times of a channel selection may count uniformly at the time of channel selection, a possibility that the favorite channel of a viewer with little viewing time will not be displayed all over the race card put in order by the order with much number of times of a channel selection is high. Thus, for a viewer with little number of times of viewing and listening, the problem which may be unable to search its own favorite channel with the device mentioned above and to say arises.

[0006] The purpose of this invention is to provide the program tuning guide device used as the guide which is not based on a viewer's viewing time, displays a receivable channel in any time, and tunes in the displayed channel in view of the problem mentioned above. There is the purpose of this invention in providing a program tuning guide device with him, when two or more viewers use it together. [ able for each viewer to search his own favorite channel easily, and to tune it in ]

[0007]

[Means for Solving the Problem] In view of the purpose mentioned above, the program tuning guide device according to claim 1, Carry out channel selection reception of the desired channel out of two or more channels, and. A channel selection reception means which extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received, A data storing part which carries out memory storing of each data extracted by a channel selection reception means, and a memory measure which counts and memorizes a channel by which channel selection reception was carried out exceeding predetermined time by a channel selection reception means, A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with many count numbers by which channel selection reception was carried out by a channel selection reception means based on contents memorized by this memory measure in an order from a higher rank, Have preparation \*\*\*\*\* and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with a receiving set, and. Based on each data stored in a data storing part, it displays on a displaying means in the state where it can be recognized visually whether it is [ table / high viewing-and-listening channel turn ] improper in ability ready for receiving in current time for every channel visually, A receiving set is made to carry out channel selection reception of the directed channel by directing arbitrary channels out of a channel in which the viewing and listening is possible.

[0008]To therefore, a high viewing-and-listening channel turn table displayed on turn with many count numbers by which channel selection reception was carried out. The contents of data of program information and current time sent from a reception radio wave are made reflected, a televiewer can recognize visually whether it is ability ready for receiving in current time by this, and it becomes possible to carry out a channel selection out of a receivable channel. In order not to count, in reception below predetermined time, there is no volition to which it views and listens, and it becomes [ case of only turning a channel ] as [ add ].

[0009]The program tuning guide device according to claim 2, Carry out channel selection reception of the desired channel out of two or more channels, and. A channel selection reception means which extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received, A data storing part which carries out memory storing of each data extracted by a channel selection reception means, and a memory measure which counts and memorizes receiving time by which channel selection reception was carried out for every channel by a channel selection reception means, A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with long receiving time by which channel selection reception was carried out by a channel selection reception means based on contents memorized by this memory measure in an order from a higher rank, Have preparation \*\*\*\*\* and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with a receiving set, and. Based on each data stored in a data storing part, it displays on a displaying means in the state where it can be recognized visually whether it is [ table / high viewing-and-listening channel turn ] improper in ability ready for receiving in current time for every channel visually, A receiving set is made to carry out channel selection reception of the directed channel by directing arbitrary channels out of a channel in which the viewing and listening is possible.

[0010]To therefore, a high viewing-and-listening channel turn table displayed on turn that time by which channel selection reception was carried out is long. The contents of data of program information and current time sent from a reception radio wave are made reflected, a televiewer can recognize visually whether it is ability ready for receiving in current time by this, and it becomes possible to carry out a channel selection out of a receivable channel.

[0011]The program tuning guide device according to claim 3, Carry out channel selection reception of the desired channel out of two or more channels, and. A channel selection reception means which extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received, A data storing part which carries out memory storing of each data extracted by a channel selection

reception means, and a memory measure which counts and memorizes a channel by which channel selection reception was carried out exceeding predetermined time by a channel selection reception means, A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with many count numbers by which channel selection reception was carried out by a channel selection reception means based on contents memorized by this memory measure in an order from a higher rank, Have preparation \*\*\*\*\* and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with a receiving set, and. Based on each data stored in a data storing part, a high viewing-and-listening channel turn table is displayed on a displaying means, where a channel of a receive not ready is deleted in current time, A channel selection reception means is made to carry out channel selection reception of that directed channel by directing arbitrary channels out of a channel displayed on this displaying means.

[0012]To therefore, a high viewing-and-listening channel turn table displayed on turn with many count numbers by which channel selection reception was carried out. It becomes possible to make the contents of data of program information and current time sent from a reception radio wave reflected, and for a televiewer to be able to recognize only a receivable channel visually in current time by this, and to tune in.

[0013]The program tuning guide device according to claim 4, Carry out channel selection reception of the desired channel out of two or more channels, and. A channel selection reception means which extracts at least data about current time, and data about information on a program sent by each channel from the broadcasting electric-wave when a broadcasting electric-wave is received, A data storing part which carries out memory storing of each data extracted by a channel selection reception means, and a memory measure which counts and memorizes receiving time by which channel selection reception was carried out for every channel by a channel selection reception means, A tabulation means to create a high viewing-and-listening channel turn table which arranged a channel with long receiving time by which channel selection reception was carried out by a channel selection reception means based on contents memorized by this memory measure in an order from a higher rank, Have preparation \*\*\*\*\* and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with a receiving set, and. Based on each data stored in a data storing part, a high viewing-and-listening channel turn table is displayed on a displaying means, where a channel of a receive not ready is deleted in current time, A receiving set is made to carry out channel selection reception of that directed channel by directing arbitrary channels out of a channel displayed on this displaying means.

[0014]To therefore, a high viewing-and-listening channel turn table displayed on turn that time by which channel selection reception was carried out is long. It becomes

possible to make the contents of data of program information and current time sent from a reception radio wave reflected, and for a televiewer to be able to recognize only a receivable channel visually in current time by this, and to tune in.

[0015]The program tuning guide device according to claim 5, A channel selection reception means for carrying out channel selection reception of the desired channel out of two or more channels, An identification device for making a televiewer who views and listens to a program identify, and a memory measure which counts and memorizes a channel by which channel selection reception was carried out according to a televiewer by a channel selection reception means, A tabulation means to create an individual high viewing-and-listening channel turn table which arranged a channel with many receiving conditions by which channel selection reception was carried out by a channel selection reception means based on a data content according to televiewer remembered by this memory measure in an order from a higher rank for every televiewer, Have a receiving set which \*\*\*\*, and a displaying means which displays a program sent by a channel by which channel selection reception was carried out with a receiving set, and. A receiving set is made to carry out channel selection reception of that directed channel by directing arbitrary channels out of a channel which displayed an individual high viewing-and-listening channel turn table on a displaying means, and was displayed on this displaying means. Therefore, an individual high viewing-and-listening channel turn table created for every televiewer can be recognized visually as a thing with each televiewer only for itself, and it becomes possible from the inside to tune in a channel.

[0016]In the program tuning guide device according to claim 5, the invention according to claim 6 an individual high viewing-and-listening channel turn table, It is displayed on a displaying means in the state ability ready for receiving or where it can be recognized visually for every channel whether it is improper visually in current time, and a receiving set is made to carry out channel selection reception of the directed channel by directing arbitrary channels out of a channel in which the viewing and listening is possible. Therefore, in current time, a televiewer can recognize visually whether it is ability ready for receiving, and it becomes possible to carry out a channel selection out of a receivable channel.

[0017]In the program tuning guide device according to claim 5, the invention according to claim 7 an individual high viewing-and-listening channel turn table, A receiving set is made to carry out channel selection reception of that directed channel by directing arbitrary channels out of a channel which was displayed on said displaying means where a channel of a receive not ready is deleted in current time, and was displayed on this displaying means. Therefore, it becomes possible for a televiewer to be able to recognize only a receivable channel visually in current time, and to tune in.

[0018]

[Embodiment of the Invention]The program tuning guide device of a 1st embodiment

of this invention is shown and explained to drawing 8 from drawing 1. The tuner 4 as a receiving set which receives the broadcasting electric-wave 3 sent by two or more channels from the broadcasting station 2, and tunes in a desired channel from them as the program tuning guide device 1 is shown in drawing 1. It has the monitoring device 5 as a displaying means which displays the program sent by the channel by which channel selection reception was carried out by the tuner 4. As for the tuner 4, it is possible to make it operate with the remote control 6 for performing various operations of channel selection operation, reserving operation, etc.

[0019]As shown in drawing 2, the broadcasting electric-wave 3 sent from the broadcasting station 2 stored various digital data in two or more packets, and is transmitted as the transponder 7 which connected them continuously and was formed. The radio frequency (RF=Radio Frequency) is respectively assigned to this transponder 7, and the tuner 4 can receive one of the transponders 7 sent by adjusting that radio frequency. [ two or more ]

[0020]The picture image data 7a and the voice data 7b of each program for 4-8 channels are contained in each transponder 7. The picture image data 7a is what stored the data about the image of the program for 4-8 channels in one packet. The data for one channel comprises two or more picture data, such as data for displaying the program by a standard screen, and data for making it display on a wide screen. And by choosing the gestalt of a channel and a screen by the tuner 4, the required data in the picture image data 7a is extracted, and it is transmitted to the monitoring device 5. The image of the program currently sent by the channel will be outputted to the display 8 of the monitoring device 5 by this. In this 1st embodiment, although the picture image data 7a is stored in one packet, it may be divided and stored in two thru/or the packet beyond it.

[0021]The voice data 7b is what stored the data about the sound of the program for 4-8 channels in one packet. The data for one channel comprises two or more data of the data for making the sound of the program output by a standard voice, the data for making it output by a sub voice, the data for making it output with other languages, etc. And by choosing the gestalt of a channel and a sound by the tuner 4, the required data in the voice data 7b is extracted, and it is transmitted to the monitoring device 5. The sound of the program currently sent by the channel will be outputted to the speaker 9 of the monitoring device 5 by this. By this 1st embodiment, although the voice data 7b is also stored in one packet, it may be divided and stored in two thru/or the packet beyond it. [ as well as the picture image data 7a ]

[0022]The reception program data 7c about the program sent to the transponder 7 by the channel in this transponder 7 on the other hand, The clock data 7e which is data about the data (henceforth broadcast data) 7d about the information on the program of each channel sent from the broadcasting station 2 and current time is contained where [ both ] the picture image data 7a and the voice data 7b in the transponder 7

are overlapped.

[0023]The reception program data 7c comprises two or more program information, such as the broadcasting day of each program for 4-8 channels stored in the transponder 7, broadcasting hours, a channel, a genre, a program content, and a program name. This reception program data 7c is updated by new information each time about the case where the case where broadcasting hours are changed on the way, and broadcasting hours are extended for example, etc. This reception program data 7c will be extracted by the data extraction part 13 of the tuner 4 out of that transponder 7, if the transponder 7 is received by the receive section 11 of the channel selection reception means 10 of the tuner 4 via the antenna 12. Memory storing of this extracted reception program data 7c is carried out at the reception-program-data storage parts store 14. The reception program data 7c stored in this reception-program-data storage parts store 14 can call the required information in it to the display 8 of the monitoring device 5 by operation of the remote control 6.

[0024]The broadcast data 7d is constituted from the broadcasting station 2 by the data about the information on all the programs sent by each channel, and serves as a timetable which expressed the program name and broadcasting hours for every channel to the tabular format. This broadcast data 7d will be extracted by the data extraction part 13 of the tuner 4 out of that transponder 7, if the transponder 7 is received by the receive section 11 of the channel selection reception means 10 of the tuner 4 via the antenna 12. And memory storing of the extracted broadcast data 7d is carried out at the data storing part 15. The contents of the data of the broadcast data 7d are updated about once per day at 4:00 of the time zone when a televiewer's receiving frequency is low for example generally, for example, early morning, etc.

[0025]The clock data 7e is data about current time, and is sent in the state where it was updated every several seconds. This clock data 7e will be extracted by the data extraction part 13 of the tuner 4 out of that transponder 7, if the transponder 7 is received by the receive section 11 of the channel selection reception means 10 of the tuner 4 via the antenna 12. And memory storing of the extracted clock data 7e is carried out at the data storing part 15.

[0026]The tuner 4 as a receiving set by specifying a channel number, With the radio frequency corresponding to the channel number, choose the transponder 7 sent from the broadcasting station 2, and it receives, The desired program is displayed on the monitoring device 5 by extracting the data about the program which agreed in the channel number among 4-8 in the transponder 7, and transmitting to the monitoring device 5. The tuner 4 counts the channel by which channel selection reception was carried out exceeding predetermined time, and has become what has possible displaying on the monitoring device 5 the high viewing-and-listening channel turn table 23 which arranged the channel with many the count number in an order from the

higher rank. It is a screen which can recognize visually whether it can view and listen to the high viewing-and-listening channel turn table 23 displayed on the monitoring device 5 at this time in current time. And the program tuning guide device 1 of a 1st embodiment makes the tuner 4 have carried out channel selection reception of the directed channel by directing arbitrary channels out of the channel to which it can be viewed and listened and which was displayed on the high viewing-and-listening channel turn table 23.

[0027]The tuner 4 carries out channel selection reception of the desired channel out of two or more channels of the broadcasting electric-wave 3 sent from the broadcasting station 2, and when it receives the broadcasting electric-wave 3, it has the channel selection reception means 10 which extracts various digital data out of the transponder 7 of the broadcasting electric-wave 3. The receive section 11 which has a function in which this channel selection reception means 10 switches received frequency to the radio frequency which agreed with the specified channel number, It comprises the data extraction part 13 which extracts the required data in the channel which agreed in the specified channel out of two or more channels of the transponder 7 of the broadcasting electric-wave 3 which received in this receive section 11 at any time.

[0028]And the inside of 4-8 in the transponder 7 received by the channel selection reception means 10, The picture image data 7a and the voice data 7b of a channel which were extracted in the data extraction part 13 are transmitted to the monitoring device 5 via the video detection circuit 16 and the sound detector circuit 17, respectively from the channel selection reception means 10. The program of the channel by which channel selection reception was carried out with the channel selection receiving set 10 is displayed on the monitoring device 5 by this. The data extraction part 13 extracts not only extraction of the picture image data 7a in the transponder 7, and the voice data 7b but other digital information, and is transmitting it to the reception-program-data storage parts store 14 or the data storing part 15.

[0029]The light sensing portion 18 which receives the order signal according [ the tuner 4 ] to the infrared signal from the remote control 6, The channel counter 19 as a memory measure which counts and memorizes the channel by which channel selection reception was carried out exceeding predetermined time by the channel selection reception means 10, It has a tabulation means 20 to create the high viewing-and-listening channel turn table 23 which arranged the channel selection receiving channel counted at the channel counter 19 in an order from the higher rank of a count number, and the control section 21 which carries out the control drive of each part of the tuner 4 with the order signal inputted into the light sensing portion 18.

[0030]The light sensing portion 18 serves as a means to receive the order signal by the infrared signal generated with the remote control 6. The order signal received by this light sensing portion 18 is inputted into the control section 21. By acquiring this



order signal, the control section 21 carries out the control drive of each part. The channel counter 19 serves as a memory measure which counts and memorizes the channel, when the channel selection reception means 10 carries out channel selection reception of the specific channel exceeding predetermined time. Namely, the control section 21 monitors the channel number which is carrying out channel selection reception by the channel selection reception means 10, and is measuring it by the timer 22 (refer to drawing 4) provided with the receiving time in the control section 21. And the control section 21 transmits that to the channel counter 19, when channel selection reception of the specific channel is carried out exceeding predetermined time. By this, the channel counter 19 can count and memorize now the channel number by which channel selection reception was carried out for every channel.

[0031]The contents counted and memorized at this channel counter 19 are transmitted to the tabulation means 20. And the tabulation means 20 creates the high viewing-and-listening channel turn table 23 as shown in drawing 3 based on the contents counted and memorized at the channel counter 19. On the other hand, when the tabulation means 20 creates the high viewing-and-listening channel turn table 23, it acquires the broadcast data 7d used as the data about the program information sent by the clock data 7e and each channel used as the data about the current time extracted from the transponder 7 from the data storing part 15. That is, the tabulation means 20 creates the high viewing-and-listening channel turn table 23 based on the data counted and memorized at the channel counter 19, and each data of the clock data 7e and the broadcast data 7d stored in the data storing part 15.

[0032]For this reason, the broadcasting hours of a program to which the high viewing-and-listening channel turn table 23 is sent by each channel, and the ability ready for receiving / improper information in current time on each channel was being reflected. By operating it using the remote control 6 and making the control section 21 drive, the high viewing-and-listening channel turn table 23 created in this way is sent to the monitoring device 5 from the tabulation means 20, and is displayed on the display 8 of the monitoring device 5.

[0033]The high viewing-and-listening channel turn table 23 is what arranged the channel with many count numbers in a certain day of the week by which channel selection reception was carried out in an order from the higher rank, as shown in drawing 3. This high viewing-and-listening channel turn table 23 is provided with the following.

Selection column 23a.

Ranking column 23b.

Channel display column 23c.

23 d of ready-for-receiving non-display columns, and the return section 23h for returning to the program display column 23e, 23 f of number-of-times display columns of viewing and listening and the page turning-over selecting part 23g, and the original

screen during broadcast.

And this high viewing-and-listening channel turn table 23, It is displayed on the monitoring device 5 in the state ability ready for receiving or where it can be recognized visually for every channel whether it is improper visually in current time, and the tuner 4 is made to have carried out channel selection reception of the directed channel by directing arbitrary channels out of the channel in which the viewing and listening is possible.

[0034]The selection column 23a located in the leftmost of this high viewing-and-listening channel turn table 23 is a thing in order to choose and specify the channel for which a televiewer asks, and the arrow type cursor 23j is movable up and down about the inside of the space of the plurality in this column by operation of the remote control 6. And when there is a channel for which it asks in the high viewing-and-listening channel turn table 23, a televiewer. By doubling within the limit which directs the channel which asks for the cursor 23j, and pushing the determination button 29c (refer to drawing 4) of the remote control 6, It is possible to switch the selection reception means 10 to the channel, to display on the display 8 the program currently sent by the channel, and to view and listen.

[0035]The column located in the right-hand of the selection column 23a is the ranking column 23b, and order with many selection reception times, i.e., the ranking from the 1st place to the 10th place, is shown. If the cursor 23j is doubled and directed to the page turning-over selecting part 23g described as "NEXT PAGE" located in the table bottom shown in this drawing 3, the channel by which ranking was carried out by the 20th place from the following ranking, i.e., the 11th place, will be displayed on the high viewing-and-listening channel turn table 23. When there is no following ranking, the display of "NEXT PAGE" of this page turning-over selecting part 23g was not displayed, and is come.

[0036]The column located in the right-hand of the ranking column 23b is the channel display column 23c for expressing a channel number. The columns of the right-hand are [ whether the channel displayed on the channel display column 23c in current time is improper in ability ready for receiving, and ] 23 d of ready-for-receiving non-display columns for a televiewer to recognize visually. That channel can recognize [ ability ready for receiving or ] visually whether it is improper in current time by a televiewer's making 23 d of this ready-for-receiving non-display column contrast with the channel display column 23c, and seeing.

[0037]During the broadcast which displayed the title of the program under present broadcast on the right-hand of 23 d of ready-for-receiving non-display columns by the channel, the program display column 23e, 23 f of number-of-times display columns of viewing and listening showing the number of times of viewing and listening in the prescribed period (setting to drawing 3 'for three months of 98.4 - 6) of the channel are provided in right-hand. The return section 23h for stopping the display of

this high viewing-and-listening channel turn table 23, and returning to the original channel is formed in the lower part of this table. Although the high viewing-and-listening channel turn table 23 is what totaled and displayed the data in a certain day of the week (it is Monday in drawing 3) in the prescribed period in this 1st embodiment, It is good also as that on which it may not be limited to what was mentioned above about the data displayed, and the data for one latest week and the data for one month may be sufficient, for example, or the data of these various kinds can be chosen and displayed.

[0038]The program tuning guide device 1 of this embodiment, As mentioned above, the table which only counted reception times and was arranged in order with many reception times is not created, Since the high viewing-and-listening channel turn table 23 is created based on the broadcast data 7d and the clock data 7e which are sent from the broadcasting station 2, it can be made to indicate whether the channel is ability ready for receiving into front. For example, even when there are change of broadcasting hours and time extension in the middle of a program, it has various advantages -- based on the data, it can be coped with flexibly.

[0039]On the other hand, the control section 21 in the tuner 4 comprises the frequency change drive circuit 24, the channel selection circuit 25, the comparison circuit 26, the memory 27, the timer 22, and CPU28 that carry out drive controlling of these each part, as shown in drawing 4. And if indication signals, such as a channel selection of a channel and a reception request to print out files of a program, are inputted into the light sensing portion 18 from the remote control 6, CPU28 will start operation with the indication signal, and CPU28 will carry out the control drive of each part of the control section 21.

[0040]The control drive of the frequency change drive circuit 24 is carried out by CPU28. This frequency change drive circuit 24 is a drive circuit for switching the received frequency of the channel selection reception means 10. This channel selection circuit 25 in which a control drive is carried out by CPU28 like the frequency change drive circuit 24 the channel selection circuit 25, It is a drive circuit for making the data extraction part 13 extract the data about the program of the channel selected among each data in the sent transponder 7, and making it output to the monitoring device 5.

[0041]The comparison circuit 26 is a circuit for carrying out the comparison reference of the reception program data 7c stored in the reception-program-data storage parts store 14, and the broadcast data 7d by which memory storing was carried out into the data storing part 15. This comparison circuit 26 compares and detects whether storage is carried out into whether it is in the transponder 7 by which the data of that directed channel is received now, and the reception-program-data storage parts store 14, when directions of channel selection are made by operation of the remote control 6. And this detection result is transmitted to CPU28.

[0042]When there is no data of the channel chosen into the transponder 7 received now as a result of this detection, CPU28 switches the frequency of the channel selection reception means 10 using the frequency change drive circuit 24. The broadcast data 7d in the transponder 7 serves as a reference table for enabling collation of a channel and frequency. Therefore, CPU28 searches the broadcast data 7d stored in the data storing part 15, when there is no data of the channel selected into the reception-program-data storage parts store 14. CPU28 detects the radio frequency of the transponder 7 containing the selected channel, and can be received now by this. When there is no broadcast assigned by the channel which cannot receive a program in the inputted channel number, and which was case [ the channel ] namely, inputted, the signal which tells that is transmitted to the monitoring device 5 from CPU28. It is possible to make the monitoring device 5 express a message with a broadcasting electric-wave "unreceivable in the channel" by this for example.

[0043]When there is data of the channel chosen into the transponder 7 received now as a result of detection, CPU28 makes the data extraction part 13 extract the picture image data 7a and the voice data 7b of the channel using the channel selection circuit 25. The selected picture image data 7a and the voice data 7b of a channel are outputted to the monitoring device 5 via the video detection circuit 16 and the sound detector circuit 17 by this, respectively.

[0044]The memory 27 has carried out memory storing of the channel number of the picture image data 7a and the voice data 7b which are made to extract by the control action of each part currently performed by CPU28, for example, the radio frequency and the data extraction part 13 of the channel selection reception means 10, the existence of a reception request to print out files, etc. Also when this memory 27 turns off the tuner 4, the memory of the data of the state before shutting off that power supply is carried out. Therefore, if a power supply is again inputted after the tuner 4 turns off the power, it will rise in the state before turning off the power.

[0045]The remote control 6 for carrying out the control drive of each means of the tuner 4, The channel number input button 29 which consists of the number input button 29a, the cursor button 29b, and the determination button 29c as shown in drawing 5, The button 30 for a screen change for switching a screen within the channel, It has the button 31 for a voice change for switching a sound within the channel, the high viewing-and-listening channel call button 32 for calling the high viewing-and-listening channel turn table 23, and the light-emitting part 33 for transmitting various order signals. As shown in drawing 6, the order signal generating part 35 for generating an order signal based on the power supply battery 34 and the contents operated with each button is built in the remote control 6.

[0046]The high viewing-and-listening channel call button 32 is formed with the one-touch type push button formed in the surface of the remote control 6, When a televiewer wants to call the high viewing-and-listening channel turn table 23 to the

display 8 of the monitoring device 5, the high viewing-and-listening channel turn table 23 is displayed on the display 8 by carrying out pushing operation. That is, if the high viewing-and-listening channel call button 32 is operated and an order signal is transmitted via the light-emitting part 33 from the order signal generating part 35, this order signal will be received by the tuner 4. Then, the contents which counted at the channel counter 19 and were memorized in the tuner 4, The high viewing-and-listening channel turn table 23 created by the tabulation means 20 based on the broadcast data 7d and the clock data 7e which were stored in the data storing part 15 is transmitted to the monitoring device 5 by control of the control section 21. The high viewing-and-listening channel turn table 23 is displayed on the display 8 by this. The televiewer can make the tuner 4 carry out channel selection reception of that channel by directing the arbitrary channels in this high viewing-and-listening channel turn table 23.

[0047]As mentioned above, in the constituted program tuning guide device 1, the data for creating the high viewing-and-listening channel turn table 23 is created, and the operation saved at the channel counter 19 is shown and explained to drawing 7. A televiewer chooses a channel from the high viewing-and-listening channel turn table 23 mentioned later using the number input button 29, and makes the tuner 4 carry out channel selection reception of the arbitrary channels first (Step S1). The picture image data 7a and the voice data 7b of a program which are sent by this channel are outputted to the monitoring device 5 via the video detection circuit 16 and the sound detector circuit 17 by this (Step S2).

[0048]The transponder 7 which contains in the tuner 4 the channel by which channel selection reception is carried out at this time, The reception program data 7c which is data about the program of all the channels sent to the picture image data 7a and the voice data 7b of this program by this transponder 7, It is sent from the broadcasting station 2 in the state where the clock data 7e which is data about the broadcast data 7d which is data about the program information sent by each channel of the broadcasting station 2, and current time was made to superimpose. In the tuner 4, when the transponder 7 sent in this way is received, storage of the required information of the various digital data in this transponder 7 is extracted and carried out (Step S3).

[0049]That is, the tuner 4 extracts the required information of the reception program data 7c in the data extraction part 13, and stores it in the reception-program-data storage parts store 14. The tuner 4 extracts the required information of the broadcast data 7d, and the clock data 7e in the data extraction part 13, and stores them in the data storing part 15. The broadcast data 7d in the transponder 7 sent from the broadcasting station 2 is day about 1 time per of rate, and the contents of the data are updated. The clock data 7e is updated every several seconds. In the tuner 4, when a data content has updating, the updated data is stored in the data storing part 15

(step S4).

[0050]On the other hand, if channel selection reception of a channel starts in this way, CPU28 which it had in the control section 21 of the tuner 4 will monitor this channel by which channel selection reception was carried out (Step S5). That is, CPU28 makes the memory 27 memorize the number of the channel by which channel selection reception was carried out, and drives the timer 22 and makes the receiving time measure (Step S6). And when channel selection reception of this channel exceeds predetermined time (YES), CPU28 transmits that to the channel counter 19 (Step S7). On the other hand, when it is switched to other channels or a power supply is come by off while channel selection reception of this channel did not exceed predetermined time, (NO) and CPU28 resets the timer 22 and suspends the monitor of that channel (Step S8).

[0051]The channel counter 19 will count and (addition) memorize the reception times of the channel, if it is told that channel selection reception of the channel exceeded predetermined time from CPU28 (step S9). In the channel counter 19, carrying-out [ exceeding predetermined time / channel selection reception of which channel ]-how many times data is stored by this. The high viewing-and-listening channel call button 32 is pushed by the tabulation means 20 by operation of the remote control 6, and so that it may mention later in the case. Based on the data remembered to have mentioned above by the channel counter 19, the high viewing-and-listening channel turn table 23 is created, and this is made to output to the monitoring device 5.

[0052]Next, operation until a televiewer makes the high viewing-and-listening channel turn table 23 which arranged the channel to which it is viewing and listening well in an order from the higher rank output to the monitoring device 5 using the program tuning guide device 1 constituted as mentioned above, Operation until it carries out channel selection reception of the channel from the high viewing-and-listening channel turn table 23 made to output to the monitoring device 5 is shown and explained to drawing 8.

[0053]When the program outputted to the monitoring device 5 does not suit a televiewer's liking at Step S2 mentioned above, a televiewer, It is possible to switch a channel by specifying a desired channel out of the channel which operated the remote control 6, made display the high viewing-and-listening channel turn table 23 on the monitoring device 5, and was displayed. In that case, a televiewer does pushing operation of the high viewing-and-listening channel call button 32 of the remote control 6 first (Step S10). Then, the order signal for displaying the high viewing-and-listening channel turn table 23 on the monitoring device 5 by the order signal generating part 35 of the remote control 6 is generated, and this order signal is transmitted to the tuner 4 from the light-emitting part 33 (Step S11).

[0054]The tuner 4 receives the order signal transmitted from the remote control 6 by the light sensing portion 18, and transmits this to CPU28 of the control section 21

(Step S12). CPU28 carries out the control drive of the channel counter 19 according to this order signal, and makes the data which counted the channel selection reception times for every channel stored in the channel counter 19 transmit to the tabulation means 20 (Step S13). By this, the tabulation means 20 acquires the data about the channel selection reception times stored in the channel counter (Step S14). On the other hand, the tabulation means 20 acquires the broadcast data 7d and the clock data 7e which were stored in the data storing part 15 by control of CPU28 (Step S15).

[0055]The tabulation means 20 creates the high viewing-and-listening channel turn table 23 in order of the following based on each data acquired at Step S14 and Step S15. First, the tabulation means 20 totals the count number for every channel sent from the channel counter 19, arranges a channel with many count numbers in an order from the higher rank of the channel display column 23c of the high viewing-and-listening channel turn table 23, and writes in the channel (Step S16). The number of times of viewing and listening of each channel totaled at this time is written in 23 f of each number-of-times display column of viewing and listening.

[0056]Next, in current time, the tabulation means 20 judges [ ability ready for receiving or ] whether it is improper based on the broadcast data 7d and the clock data 7e which were acquired from the data storing part 15 about each channel (Step S17). For and the reason of broadcast of the day being completed or the contract of a televiewer and the broadcasting station 2 having expired, as a result of judging at Step S17. In current time, "x" is written for reception in the channel of a failure (NO) at 23 d of ready-for-receiving non-display columns of the channel (Step S18). On the other hand, as a result of judging at Step S17, in current time, "it is good" is written in the channel of ability (YES) ready for receiving at 23 d of ready-for-receiving non-display columns of the channel (Step S19).

[0057]Based on the broadcast data 7d acquired at Step S15, the title of the program currently broadcast in current time by each channel is written in the program display column 23e during broadcast of the channel with which the "good" display was made at Step S19 (Step S20). Thus, after the writing of each column of the high viewing-and-listening channel turn table 23 is completed, this high viewing-and-listening channel turn table 23 is transmitted to the monitoring device 5 by control of CPU28, and is displayed on the display 8 of the monitoring device 5 (Step S21). At Step S18, about the channel with which "x" used as the mark of a receive not ready was written in 23 d of ready-for-receiving non-display columns, it is [ that the ranking and the number of times of viewing and listening of ranking are only displayed, and ], and channel selection reception cannot be carried out from this screen.

[0058]A televiewer refers to a channel number of the high viewing-and-listening channel turn table 23, a title of a program, etc. which were displayed on the monitoring

device 5 in this way, When there is a desired channel in the channel with which the mark "good" of ability ready for receiving was displayed on 23 d of ready-for-receiving non-display columns (YES), the cursor button 29b and the determination button 29c of the remote control 6 are used, and the channel is directed (Step S22). When there is no desired channel in the channel displayed on the high viewing-and-listening channel turn table 23, it can return to the screen of the original channel by directing the return section 23h in the high viewing-and-listening channel turn table 23 to (NO) using the remote control 6 (Step S23). The signal of the purport that a channel is switched is transmitted to the tuner 4 from the remote control 6. By this, a control drive is carried out so that the control section 21 may switch the channel selection reception means 10 to the channel (Step S24), and the program sent by the channel of a televiewer's request is outputted to the monitoring device 5 (Step S25).

[0059]Next, the program tuning guide device 51 of a 2nd embodiment of this invention is explained using drawing 17 from drawing 9. As shown in drawing 9, the program tuning guide device 51 like a 1st embodiment, The tuner 54 as a receiving set which receives the broadcasting electric-wave 53 sent by two or more channels from the broadcasting station 52, and tunes in a desired channel from them, It has the monitoring device 55 as a displaying means which displays the program sent by the channel by which channel selection reception was carried out by the tuner 54. As for the tuner 54, it is possible to make it operate with the remote control 56 for performing various operations of channel selection operation, reserving operation, etc.

[0060]As shown in drawing 10, the broadcasting electric-wave 53 sent from the broadcasting station 52 stored various digital data in two or more packets, and is transmitted as the transponder 57 which connected them continuously and was formed. The radio frequency (RF=Radio Frequency) is respectively assigned to this transponder 57, and the tuner 54 can receive one of the transponders 57 sent by adjusting that radio frequency. [ two or more ]

[0061]The picture image data 57a and the voice data 57b of each program for 4-8 channels are contained in each transponder 57. The picture image data 57a is what stored the data about the image of the program for 4-8 channels in one packet. The data for one channel comprises two or more picture data, such as data for displaying the program by a standard screen, and data for making it display on a wide screen. And by choosing the gestalt of a channel and a screen by the tuner 54, the required data in the picture image data 57a is extracted, and it is transmitted to the monitoring device 55. The image of the program currently sent by the channel will be outputted to the display 58 of the monitoring device 55 by this. Like [ this 2nd embodiment ] a 1st embodiment, although the picture image data 57a is stored in one packet, it may be divided and stored in two thru/or the packet beyond it.

[0062]The voice data 57b is what stored the data about the sound of the program for



4-8 channels in one packet. The data for one channel comprises two or more data of the data for making the sound of the program output by a standard voice, the data for making it output by a sub voice, the data for making it output with other languages, etc. And by choosing the gestalt of a channel and a sound by the tuner 54, the required data in the voice data 57b is extracted, and it is transmitted to the monitoring device 55. The sound of the program currently sent by the channel will be outputted to the speaker 59 of the monitoring device 55 by this. Although the voice data 57b is also stored in one packet, it may be divided and stored in two thru/or the packet beyond it. [ as well as the picture image data 57a ]

[0063]The same digital data 57c as the transponder 7 in a 1st embodiment mentioned above to the transponder 57 on the other hand, i.e., reception program data, The broadcast data 57d and the clock data 57e are contained where [ both ] the picture image data 57a and the voice data 57b in the transponder 57 are overlapped.

[0064]The reception program data 57c will be extracted by the data extraction part 63 of the tuner 54 out of the transponder 57, if the transponder 57 is received by the receive section 61 of the channel selection reception means 60 of the tuner 54 via the antenna 62. Memory storing of this extracted reception program data 57c is carried out at the reception-program-data storage parts store 64. The reception program data 57c stored in this reception-program-data storage parts store 64 can call the required information in it to the display 58 of the monitoring device 55 by operation of the remote control 56.

[0065]The broadcast data 57d will be extracted by the data extraction part 63 of the tuner 54 out of the transponder 57, if the transponder 57 is received by the receive section 61 of the channel selection reception means 60 of the tuner 54 via the antenna 62. And memory storing of the extracted broadcast data 57d is carried out at the data storing part 65. The contents of the data of the broadcast data 57d are updated about once per day, for example in the time zone when a televiewer's receiving frequency is low.

[0066]The clock data 57e is data about current time, and is sent in the state where it was updated every several seconds. This clock data 57e will be extracted by the data extraction part 63 of the tuner 54 out of that transponder 57, if the transponder 57 is received by the receive section 61 of the channel selection reception means 60 of the tuner 54 via the antenna 62. And memory storing of the extracted clock data 57e is carried out at the data storing part 65.

[0067]The tuner 54 as a receiving set by specifying a channel number, With the radio frequency corresponding to the channel number, choose the transponder 57 sent from the broadcasting station 52, and it receives, The desired program is displayed on the monitoring device 55 by extracting the data about the program which agreed in the channel number among 4-8 in the transponder 57, and transmitting to the monitoring device 55. The tuner 54 recognizes the televiewer who views and listens to a program

by operation with the remote control 6, The channel by which channel selection reception was carried out exceeding predetermined time for every televiewer is counted, and it has become what has possible displaying on the monitoring device 55 the individual high viewing-and-listening channel turn table 73 which arranged the channel with many the count number in an order from the higher rank. It is a screen which can recognize visually whether it can view and listen to the individual high viewing-and-listening channel turn table 73 displayed on the monitoring device 55 at this time in current time. And the tuner 54 is made to have carried out channel selection reception of the directed channel in the program tuning guide device 51 of a 2nd embodiment by directing arbitrary channels out of the channel to which it can be viewed and listened and which was displayed on the individual high viewing-and-listening channel turn table 73.

[0068]The tuner 54 carries out channel selection reception of the desired channel out of two or more channels of the broadcasting electric-wave 53 sent from the broadcasting station 52, and when it receives the broadcasting electric-wave 53, it has the channel selection reception means 60 which extracts various digital data out of the transponder 57 of the broadcasting electric-wave 53. The receive section 61 which has a function in which this channel selection reception means 60 switches received frequency to the radio frequency which agreed with the specified channel number, It comprises the data extraction part 63 which extracts the required data in the channel which agreed in the specified channel out of two or more channels of the transponder 57 of the broadcasting electric-wave 53 which received in this receive section 61 at any time.

[0069]And the inside of 4-8 in the transponder 57 received by the channel selection reception means 60, The picture image data 57a and the voice data 57b of a channel which were extracted in the data extraction part 63 are transmitted to the monitoring device 55 via the video detection circuit 66 and the sound detector circuit 67, respectively from the channel selection reception means 60. The program of the channel tuned in with the channel selection receiving set 60 is displayed on the monitoring device 55 by this. The data extraction part 63 extracts not only extraction of the picture image data 57a in the transponder 57, and the voice data 57b but other digital information, and is transmitting it to the reception-program-data storage parts store 64 or the data storing part 65.

[0070]The light sensing portion 68 which receives the order signal according [ the tuner 54 ] to the infrared signal from the remote control 56, The ID recognition part 69 as an identification device which identifies the televiewer who views and listens to a program based on the signal inputted into the light sensing portion 68, The channel counter 70 as a memory measure which counts and memorizes the channel by which channel selection reception was carried out exceeding predetermined time by the channel selection reception means 60 according to a televiewer, A tabulation means

71 to create the individual high viewing-and-listening channel turn table 73 which arranged the count number of the channel selection receiving channel in an order from the higher rank based on the data content according to televiewer remembered by the channel counter 70. It has the control section 72 which carries out the control drive of each part of the tuner 54 with the order signal inputted into the light sensing portion 68.

[0071]The light sensing portion 68 serves as a means to receive the order signal by the infrared signal generated with the remote control 56. The order signal received by this light sensing portion 68 is inputted into the control section 72. By acquiring this order signal, the control section 72 carries out the control drive of each part. The ID recognition part 69 is a thing for reading this signal and specifying a televiewer, if the signal for ID recognition generated with the remote control 56 by performing operation for specifying a televiewer is inputted into the light sensing portion 68. The ID recognition part 69 will transmit that to the control section 72, if the signal for ID recognition is received.

[0072]After the channel counter 70 recognizes a televiewer with the specific ID recognition part 69, When the channel selection reception means 60 receives a specific channel exceeding predetermined time by the same televiewer's channel selection, the channel serves as a memory measure which counts individually that channel selection reception was carried out, and memorizes it by the televiewer. That is, the control section 72 recognizes the televiewer identified by the ID recognition part 69. Simultaneously with it, the channel number which is carrying out channel selection reception by the channel selection reception means 60 is monitored, and the timer 74 (refer to drawing 12) provided with the receiving time in the control section 72 is made to measure. And the control section 72 transmits that to the channel counter 70, when channel selection reception of the specific channel is done by the specific televiewer exceeding predetermined time. By this, the channel counter 70 counts and memorizes the channel number in which channel selection reception was done by the specific televiewer for every televiewer and every channel.

[0073]The contents counted and memorized at this channel counter 70 are transmitted to the tabulation means 71. And the tabulation means 71 creates the individual high viewing-and-listening channel turn table 73 as shown in drawing 11 based on the contents which counted individually and were memorized for every televiewer at the channel counter 70. That is, this individual high viewing-and-listening channel turn table 73 is being created based on the contents which counted, respectively and were memorized for every televiewer, respectively. When the tabulation means 71, on the other hand, creates the individual high viewing-and-listening channel turn table 73, Each data of the broadcast data 57d used as the data about the program information sent by the clock data 57e and each channel used as the data about the current time extracted from the transponder 57 is

acquired from the data storing part 65. That is, the tabulation means 71 creates the individual high viewing-and-listening channel turn table 73 based on the clock data 57e and the broadcast data 57d which were stored in the individual data and the data storing part 65 which were counted and memorized at the channel counter 70.

[0074]For this reason, the broadcasting hours of a program to which the individual high viewing-and-listening channel turn table 73 is sent by each channel, and the ability ready for receiving / improper information in current time on each channel was being reflected. By operating it using the remote control 56 and making the control section 72 drive, the individual high viewing-and-listening channel turn table 73 created in this way is sent to the monitoring device 55 from the tabulation means 71, and is displayed on the display 58 of the monitoring device 55.

[0075]The individual high viewing-and-listening channel turn table 73 is what arranged the channel with many count numbers which carried out channel selection reception in the day of the week with a certain televiewer in an order from the higher rank, as shown in drawing 11. This individual high viewing-and-listening channel turn table 73 The selection column 73a and the ranking column 73b, It has the program display column 73e, 73 f of number-of-times display columns of viewing and listening and the page turning-over selecting part 73g, the return section 73h for returning to the original screen, and the televiewer indicator 73j during broadcast with the channel display column 73c and 73 d of ready-for-receiving non-display columns. And this individual high viewing-and-listening channel turn table 73, It is displayed on the monitoring device 55 in the state ability ready for receiving or where it can be recognized visually for every channel whether it is improper visually in current time, and the tuner 54 is made to have carried out channel selection reception of the directed channel by directing arbitrary channels out of the channel in which the viewing and listening is possible.

[0076]The selection column 73a located in the leftmost of this individual high viewing-and-listening channel turn table 73 is a thing in order to choose and specify the channel for which a televiewer asks, and the arrow type cursor 73k is movable up and down about the inside of the space of the plurality in this column by operation of the remote control 56. And when there is a channel for which it asks in the individual high viewing-and-listening channel turn table 73, a televiewer. By doubling within the limit which directs the channel which asks for the cursor 73k, and pushing the determination button 80c (refer to drawing 13) of the remote control 56, It is possible to switch the selection reception means 60 to the channel, to display on the display 58 the program currently sent by the channel, and to view and listen.

[0077]The column located in the right-hand of the selection column 73a is the ranking column 73b, and order with many selection reception times, i.e., the ranking from the 1st place to the 10th place, is shown. If the cursor 73k is doubled and directed to the page turning-over selecting part 73g described as "NEXT PAGE" located in the table

bottom shown in this drawing 11, the channel by which ranking was carried out by the 20th place from the following ranking, i.e., the 11th place, will be displayed on the high viewing-and-listening channel turn table 73. When there is no following ranking, the display of "NEXT PAGE" of this page turning-over selecting part 73g was not displayed, and is come.

[0078]The column located in the right-hand of the ranking column 73b is the channel display column 73c for expressing a channel number. The columns of the right-hand are [ whether the channel displayed on the channel display column 73c in current time is improper in ability ready for receiving, and ] 73 d of ready-for-receiving non-display columns for a televiewer to recognize visually. That channel can recognize [ ability ready for receiving or ] visually whether it is improper in current time by a televiewer's making 73 d of this ready-for-receiving non-display column contrast with the channel display column 73c, and seeing.

[0079]During the broadcast which displayed the title of the program under present broadcast on the right-hand of 73 d of ready-for-receiving non-display columns by the channel, the program display column 73e, 73 f of number-of-times display columns of viewing and listening showing a certain televiewer's number of times of viewing and listening in the prescribed period (setting to drawing 11 'for three months of 98.4 - 6) of the channel are provided in right-hand. The return section 73h for stopping the display of this individual high viewing-and-listening channel turn table 73, and returning to the original channel is formed in the lower part of this table. In drawing 11, the televiewer indicator 73j for displaying the "user number" used as a televiewer's registration number is formed in the upper part. It may be made for this televiewer indicator 73j to display that registered name by registering a televiewer's own name in written form by operation of the remote control 6.

[0080]As mentioned above, the program tuning guide device 51 of a 2nd embodiment counts the reception times for every [ in the tuner 54 ] channel, and it not only arranges it in order with many reception times, but it serves as a table which counted the reception times according to the televiewer. Since the individual high viewing-and-listening channel turn table 73 is created based on the broadcast data 57d and the clock data 57e which are sent from the broadcasting station 52, it can be made to indicate whether the channel is ability ready for receiving in current time. For example, even when there are change of broadcasting hours and time extension in the middle of a program, it has various advantages -- based on the data, it can be coped with flexibly. Based on the digital data sent from the broadcasting station 52, in current time, that channel is not limited to what indicates [ ability ready for receiving or ] whether it is improper, but may only create the individual high viewing-and-listening channel turn table 73 especially in this 2nd embodiment.

[0081]On the other hand, the control section 72 in the tuner 54 comprises the frequency change drive circuit 75, the channel selection circuit 76, the comparison

circuit 77, the memory 78, the timer 74, and CPU79 that carry out drive controlling of these each part, as shown in drawing 12. And if various indication signals, such as a signal for making a televiewer identify, a channel selection of a channel, a reception request to print out files of a program, are inputted into the light sensing portion 68 from the remote control 56, CPU79 will start operation with the indication signal, and CPU79 will carry out the control drive of each part of the control section 72.

[0082]The control drive of the frequency change drive circuit 75 is carried out by CPU79. This frequency change drive circuit 75 is a drive circuit for switching the received frequency of the channel selection reception means 60. This channel selection circuit 76 in which a control drive is carried out by CPU79 like the frequency change drive circuit 75 the channel selection circuit 76, It is a drive circuit for making the data extraction part 63 extract the data about the program of the channel selected among each data in the sent transponder 57, and making it output to the monitoring device 55.

[0083]The comparison circuit 77 is a circuit for carrying out the comparison reference of the reception program data 57c stored in the reception-program-data storage parts store 64, and the broadcast data 57d by which memory storing was carried out into the data storing part 65. This comparison circuit 77 compares and detects whether storage is carried out into whether it is in the transponder 57 by which the data of that directed channel is received now, and the reception-program-data storage parts store 64, when directions of channel selection are made by operation of the remote control 56. And this detection result is transmitted to CPU79.

[0084]When there is no data of the channel chosen into the transponder 57 received now as a result of this detection, CPU79 switches the frequency of the channel selection reception means 60 using the frequency change drive circuit 75. The broadcast data 57d in the transponder 57 serves as a reference table for enabling collation of a channel and frequency. Therefore, CPU79 searches the broadcast data 57d stored in the data storing part 65, when there is no data of the channel selected into the reception-program-data storage parts store 64. CPU79 detects the radio frequency of the transponder 57 containing the selected channel, and can be received now by this. When there is no broadcast assigned by the channel which a program cannot receive in the inputted channel number, and which was case [ the channel ] namely, inputted, the signal which tells that is transmitted to the monitoring device 55 from CPU79. It is possible to make the monitoring device 55 express a message with a broadcasting electric-wave "unreceivable in the channel" by this for example.

[0085]When there is data of the channel chosen into the transponder 57 received now as a result of detection, CPU79 makes the data extraction part 63 extract the picture image data 57a and the voice data 57b of the channel using the channel selection circuit 76. The selected picture image data 57a and the voice data 57b of a channel are outputted to the monitoring device 55 via the video detection circuit 66 and the

sound detector circuit 67 by this, respectively.

[0086]The control action of each part to which the memory 78 is performed by CPU79, For example, memory storing of the channel number of the picture image data 57a and the voice data 57b which are made to extract in the radio frequency and the data extraction part 63 of the data which identified the televiewer who is viewed and listening to a program, or the channel selection reception means 60, the existence of a reception request to print out files, etc. has been carried out. Also when this memory 78 turns off the tuner 54, the memory of the data of the state before shutting off that power supply is carried out. Therefore, if a power supply is again inputted after the tuner 54 turns off the power, it will rise in the state before turning off the power.

[0087]The remote control 56 for carrying out the control drive of each means of the tuner 54, The channel number input button 80 which consists of the number input button 80a, the cursor button 80b, and the determination button 80c as shown in drawing 13, The button 81 for a screen change for switching a screen within the channel, The button 82 for a voice change for switching a sound within the channel, It has the televiewer input button 83 for making the tuner 54 recognize a televiewer, the high viewing-and-listening channel call button 84 for calling the individual high viewing-and-listening channel turn table 73, and the light-emitting part 85 for transmitting various order signals. As shown in drawing 14, the order signal generating part 87 for generating an order signal based on the power supply battery 86 and the contents operated with each button is built in the remote control 56.

[0088]The televiewer input button 83 is formed with the one-touch type push button formed in the surface of the remote control 56. A push on this televiewer input button 83 will display a message, such as "please input a user number", on the display 58 of the monitoring device 55 like drawing 15. According to this message, when a televiewer inputs his user number (number for identifying a televiewer), the signal for recognizing a televiewer from the remote control 56 is transmitted to the tuner 54. By this, the tuner 54 can identify now the televiewer who views and listens to a program. As mentioned above, it constituted from a 2nd embodiment, but it is not limited to this composition, two or more televiewer input buttons 83 are formed, for example, and it may be made to transmit the signal for making a televiewer recognize direct by one-touch, respectively. When inputting the tuner 54 and the power supply of the monitoring device 55, after certainly going via the screen shown in drawing 15, it may constitute so that a channel input may be made possible.

[0089]The high viewing-and-listening channel call button 84 is a button for displaying the individual high viewing-and-listening channel turn table 73 used as the televiewer's original race card on the monitoring device 55, after making a televiewer recognize with the televiewer input button 83. This high viewing-and-listening channel call button 84 is formed with the one-touch type push button formed in the surface of the remote control 56, and when a televiewer wants to call the individual high

viewing-and-listening channel turn table 73 to the display 58 of the monitoring device 55, it is a thing for carrying out pushing operation. That is, if the high viewing-and-listening channel call button 84 is operated and an order signal is transmitted via the light-emitting part 85 from the order signal generating part 87, this order signal will be received by the tuner 54.

[0090]Then, the contents counted and memorized by the channel counter 70 according to the televiewer in the tuner 54, The individual high viewing-and-listening channel turn table 73 created by the tabulation means 71 based on the broadcast data 57d and the clock data 57e which were stored in the data storing part 65 is transmitted to the monitoring device 55 by control of the control section 72. The individual high viewing-and-listening channel turn table 73 is displayed on the display 58 by this. The televiewer can make the tuner 54 carry out channel selection reception of that channel by directing the arbitrary channels in this individual high viewing-and-listening channel turn table 73.

[0091]The data for creating the individual high viewing-and-listening channel turn table 73 for each televiewers by monitoring the channel which made recognize the televiewer who views and listens to a program to the tuner 54 in the program tuning guide device 51 constituted as mentioned above, and was received is created, The operation saved at the channel counter 70 is shown and explained to drawing 16.

[0092]First, when a televiewer views and listens to a program, he operates the televiewer input button 83 first, and transmits the signal for televiewer discernment to the tuner 54 (Step S31). Then, the signal for this televiewer discernment is inputted into the tuner 4 (Step S32). By this, the light sensing portion 68 of the tuner 4 receives this signal, and transmits to the ID recognition part 69. The ID recognition part 69 recognizes this signal, recognizes the televiewer of a program, and tells that to the control section 72 (Step S33). The televiewer identified by the tuner 54 chooses a channel from the individual high viewing-and-listening channel turn table 73 mentioned later using the number input button 80, and makes the tuner 54 carry out channel selection reception of the arbitrary channels from this state (Step S34). The picture image data 57a and the voice data 57b of a program which are sent by the channel in which channel selection reception was done by the identified televiewer are outputted to the monitoring device 55 via the video detection circuit 66 and the sound detector circuit 67 by this (Step S35).

[0093]The transponder 57 containing the channel received by the tuner 54 at this time, The reception program data 57c which is data about the program of all the channels sent to the picture image data 57a and the voice data 57b of this program by this transponder 57, It is sent from the broadcasting station 52 in the state where the clock data 57e which is data about the broadcast data 57d which is data about the program information sent by each channel of the broadcasting station 52, and current time was made to superimpose. In the tuner 54, when the transponder 57 sent in this



way is received, storage of the required information of the various digital data in this transponder 57 is extracted and carried out (Step S36).

[0094]That is, the tuner 54 extracts the required information of the reception program data 57c in the data extraction part 63, and stores it in the reception-program-data storage parts store 64. The tuner 54 extracts the required information of the broadcast data 57d, and the clock data 57e in the data extraction part 63, and stores them in the data storing part 65. The broadcast data 57d in the transponder 57 sent from the broadcasting station 52 is day about 1 time per of rate, and the contents of the data are updated. The clock data 57e is updated every several seconds. In the tuner 54, when a data content has updating, the updated data is stored in the data storing part 65 (Step S37).

[0095]On the other hand, if channel selection reception of a channel starts in this way, CPU79 which it had in the control section 72 of the tuner 54 will monitor this channel by which channel selection reception was carried out (Step S38). That is, CPU79 makes the memory 78 memorize the number of the channel in which channel selection reception was done by the identified viewer, and drives the timer 74 and makes the receiving time measure (Step S39). And when channel selection reception of this channel exceeds predetermined time (YES), CPU79 transmits that to the channel counter 70 (Step S40). On the other hand, while channel selection reception of this channel does not exceed predetermined time, are switched to other channels, or, Or when a viewer's registration is changed or a power supply is further come by off, (NO) and CPU79 resets the timer 74 and suspends the monitor of the channel (Step S41).

[0096]The channel counter 70 will count and (addition) memorize the reception times of the channel in the viewer, if it is told that channel selection reception of the specific channel by a specific viewer exceeded predetermined time from CPU79 (Step S42). By this, the data of channel selection reception of which channel was carried out how many times exceeding predetermined time is stored by which viewer in the channel counter 70. The high viewing-and-listening channel call button 84 is pushed by the tabulation means 71 by operation of the remote control 56, and so that it may mention later in the case. The individual high viewing-and-listening channel turn table 73 is created, and this is made to output to the monitoring device 55 based on the data content according to viewer remembered to have mentioned above by the channel counter 70.

[0097]Next, operation until a specific viewer makes the individual high viewing-and-listening channel turn table 73 which arranged the channel to which it is viewing and listening well in an order from the higher rank output to the monitoring device 55 using the program tuning guide device 51 constituted as mentioned above, The operation for choosing a channel from the screen displayed on the monitoring device 55 is shown and explained to drawing 17.

[0098]When the program outputted to the monitoring device 55 does not suit the televiewer's liking at Step S34 mentioned above, a televiewer, It is possible to switch a channel by specifying a desired channel out of the channel which operated the remote control 56, made display the individual high viewing-and-listening channel turn table 73 on the monitoring device 55, and was displayed. In that case, a televiewer does pushing operation of the high viewing-and-listening channel call button 84 of the remote control 56 first (Step S43). Then, in the order signal generating part 87 of the remote control 56, the order signal for displaying on the monitoring device 55 the individual high viewing-and-listening channel turn table 73 for televiewers identified by the ID recognition part 69 is generated, and this order signal is transmitted to the tuner 54 from the light-emitting part 85 (Step S44).

[0099]The tuner 54 receives the order signal transmitted from the remote control 56 by the light sensing portion 68, and transmits this to CPU79 of the control section 72 (Step S45). CPU79 carries out the control drive of the channel counter 70 according to this order signal, The data about the televiewer under [ out of the data which counted the channel selection reception times for every channel according to televiewer stored in the channel counter 70 ] present discernment is made to transmit to the tabulation means 71 (Step S46). By this, the tabulation means 71 acquires the data about the channel selection reception times in the televiewer under present discernment stored in the channel counter 70 (Step S47). On the other hand, the tabulation means 71 acquires the broadcast data 57d and the clock data 57e which were stored in the data storing part 65 by control of CPU79 (Step S48).

[0100]The tabulation means 71 creates the individual high viewing-and-listening channel turn table 73 for the televiewers under present discernment in the following order based on each data acquired at Step S47 and Step S48. First, the tabulation means 71 totals the count number for every channel sent from the channel counter 70, In this televiewer, a channel with many count numbers is arranged in an order from the higher rank of the channel display column 73c of the individual high viewing-and-listening channel turn table 73, and that channel is written in (Step S49). The number of times of viewing and listening of each channel totaled at this time is written in 73 f of each number-of-times display column of viewing and listening.

[0101]Next, in current time, the tabulation means 71 judges [ ability ready for receiving or ] whether it is improper based on the broadcast data 57d and the clock data 57e which were acquired from the data storing part 65 about each channel (Step S50). For and the reason of broadcast of the day being completed or the contract of a televiewer and the broadcasting station 52 having expired, as a result of judging at Step S50. In current time, "x" is written for reception in the channel of a failure (NO) at 73 d of ready-for-receiving non-display columns of the channel (Step S51). On the other hand, as a result of judging at Step S50, in current time, "it is good" is written in the channel of ability (YES) ready for receiving at 73 d of ready-for-receiving

non-display columns of the channel (Step S52).

[0102]Based on the broadcast data 57d acquired at Step S48, the title of the program currently broadcast in current time by each channel is written in the program display column 73e during broadcast of the channel with which the "good" display was made at Step S52 (Step S53). Thus, after the writing of each column of the individual high viewing-and-listening channel turn table 73 is completed, this individual high viewing-and-listening channel turn table 73 is transmitted to the monitoring device 55 by control of CPU79, and is displayed on the display 58 of the monitoring device 55 (Step S54). At Step S51, about the channel with which "x" used as the mark of a receive not ready was written in 73 d of ready-for-receiving non-display columns, it is [ that the ranking and the number of times of viewing and listening of ranking are only displayed, and ], and channel selection reception cannot be carried out from this screen.

[0103]A televiewer refers to a channel number of the individual high viewing-and-listening channel turn table 73, a title of a program, etc. which were displayed on the monitoring device 55 in this way, When a desired channel is in the displayed channel (YES), the cursor button 80b and the determination button 80c of the remote control 56 are used, and the channel is directed (Step S55). When there is no desired channel, in the channel displayed on the individual high viewing-and-listening channel turn table 73 to (NO). It can return to the screen of the original channel by directing the return section 73h in the individual high viewing-and-listening channel turn table 73 using the remote control 56 (Step S56).

[0104]If Step S55 is operated, the signal of the purport that a channel is switched will be transmitted to the tuner 54 from the remote control 56. By this, a control drive is carried out so that the control section 72 may switch the channel selection reception means 60 to the channel (Step S57), and the program sent by the channel of a televiewer's request is outputted to the monitoring device 55 (Step S58).

[0105]The program tuning guide devices 1 and 51 of each embodiment were constituted as mentioned above, respectively, but they can be variously changed in the range which does not deviate from the gist of this invention. For example, when the channel which the televiewer tuned in is received in each embodiment mentioned above exceeding predetermined time, Although the receiving frequency of a channel is detected and he is trying to create high viewing-and-listening channel turn individual high viewing-and-listening channel turn Table 23 and 73 based on this data by counting using the channel counters 19 and 70, For example, it may constitute so that the receiving time of a channel may be measured simply and ranking may be formed by this receiving time.

[0106]Although it is made to display in the program tuning guide devices 1 and 51 of each embodiment in the state where you made it intermingled so that a televiewer can recognize a receivable channel and an improper channel visually in current time,

respectively to high viewing-and-listening channel turn individual high viewing-and-listening channel turn Table 23 and 73, It may be made to make it display in the state where it deleted about the unreceivable channel.

[0107]

[Effect of the Invention]According to the invention given in claims 1, 2, 3, and 4, since a televiewer can recognize visually whether it is ability ready for receiving in current time, the channel displayed all over the high viewing-and-listening channel ranking table, It becomes possible to tune in a channel receivable out of the displayed channel only by displaying a high viewing-and-listening channel ranking table on a displaying means, and channel operation will become easier for a televiewer.

[0108]In order not to count [ according to the invention given in claims 1 and 3 ] as the number of times of a channel selection in the channel selection reception below predetermined time, There is no volition to which it views and listens, and only the case of only turning the channel is not added but it becomes a program tuning guide device which can form a more real high viewing-and-listening channel turn table.

[0109]Since it was made to display on a displaying means the thing in the state where the thing of the receive not ready was deleted from the high viewing-and-listening channel turn table in current time according to the invention given in claims 3 and 4, A televiewer becomes a high program tuning guide device of the convenience which the problem of choosing the thing of a receive not ready accidentally does not produce.

[0110]Since it can have an individual high viewing-and-listening channel turn table with a thing with each televiewer only for itself according to the invention according to claim 5, liking of it can be made to reflect in an individual high viewing-and-listening channel turn table thoroughly. Therefore, the convenience at the time of a channel tuning in for each televiewer serves as a very high program tuning guide device.

[0111]According to the invention according to claim 6, since the channel displayed all over the individual high viewing-and-listening channel ranking table can recognize visually whether it is ability ready for receiving in current time, channel operation will become easier for a televiewer. Since it is possible to change into the state where the channel of the receive not ready was deleted in current time, and for a televiewer to be able to recognize only a receivable channel visually, and to tune in according to the invention according to claim 7, A televiewer becomes a high program tuning guide device of the convenience which the problem of choosing the thing of a receive not ready accidentally does not produce.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]It is a block diagram showing the whole program tuning guide device outline structure of a 1st embodiment of this invention.

[Drawing 2]It is a mimetic diagram showing the internal structure of the broadcasting electric-wave sent from a broadcasting station to the tuner of the program tuning guide device shown in drawing 1.

[Drawing 3]It is a figure showing an example of the high viewing-and-listening channel turn table displayed on the monitoring device of the program tuning guide device shown in drawing 1.

[Drawing 4]It is a block diagram mainly showing the control section of the program tuning guide device shown in drawing 1.

[Drawing 5]It is a perspective view showing typically the whole program tuning guide device shown in drawing 1.

[Drawing 6]It is a block diagram showing the internal structure of the remote control of the program tuning guide device shown in drawing 5.

[Drawing 7]It is a flow chart figure showing the operation at the time of creating the data for creating a high viewing-and-listening channel turn table using the program tuning guide device of a 1st embodiment of this invention.

[Drawing 8]It is a flow chart figure showing the operation at the time of displaying a high viewing-and-listening channel turn table on a monitoring device using the program tuning guide device of a 1st embodiment of this invention, and carrying out channel selection reception of the channel using the displayed high viewing-and-listening channel turn table.

[Drawing 9]It is a block diagram showing the whole program tuning guide device outline structure of a 2nd embodiment of this invention.

[Drawing 10]It is a mimetic diagram showing the internal structure of the broadcasting electric-wave sent from a broadcasting station to the tuner of the program tuning guide device shown in drawing 9.

[Drawing 11]It is a figure showing an example of the individual high viewing-and-listening channel turn table displayed on the monitoring device of the program tuning guide device shown in drawing 9.

[Drawing 12]It is a block diagram mainly showing the control section of the program tuning guide device shown in drawing 9.

[Drawing 13]It is a perspective view showing typically the whole program tuning guide device shown in drawing 9.

[Drawing 14]It is a block diagram showing the internal structure of the remote control of the program tuning guide device shown in drawing 13.

[Drawing 15]It is a figure showing the example on which the initial screen format for making a televiewer identify was displayed in the monitoring device of the program tuning guide device shown in drawing 9.

[Drawing 16]It is a flow chart figure showing the operation at the time of creating the

data for creating an individual high viewing-and-listening channel turn table using the program tuning guide device of a 2nd embodiment of this invention.

[Drawing 17] It is a flow chart figure showing the operation at the time of displaying an individual high viewing-and-listening channel turn table on a monitoring device using the program tuning guide device of a 2nd embodiment of this invention, and carrying out channel selection reception of the channel using the displayed individual high viewing-and-listening channel turn table.

[Description of Notations]

- 1 Program tuning guide device
- 2 Broadcasting station
- 3 Broadcasting electric-wave
- 4 Tuner (receiving set)
- 5 Monitoring device (displaying means)
- 6 Remote control (controller)
- 7c Broadcast program data
- 7 d Broadcast data (data about the information on the program sent by each channel)
- 7e Clock data (data about current time)
- 10 Channel selection reception means
- 13 Broadcast-program-data reading part
- 14 Program data storage parts store
- 15 Data storing part
- 16 Program lock input button (program lock input part)
- 17 Channel selection reception means
- 19 Channel counter (memory measure)
- 20 Tabulation means
- 23 High viewing-and-listening channel turn table
- 51 Program tuning guide device
- 54 Tuner (receiving set)
- 55 Monitoring device (displaying means)
- 60 Channel selection reception means
- 69 ID recognition part (identification device)
- 70 Channel counter (memory measure)
- 71 Tabulation means
- 73 Individual high viewing-and-listening channel turn table

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(71) 出願人 000201113

船井電機株式会社

大阪府大東市中垣内7丁目7番1号

(71) 出願人 390004983

株式会社船井電機研究所

東京都千代田区外神田4丁目11番5号

(72) 発明者 濱崎 忠

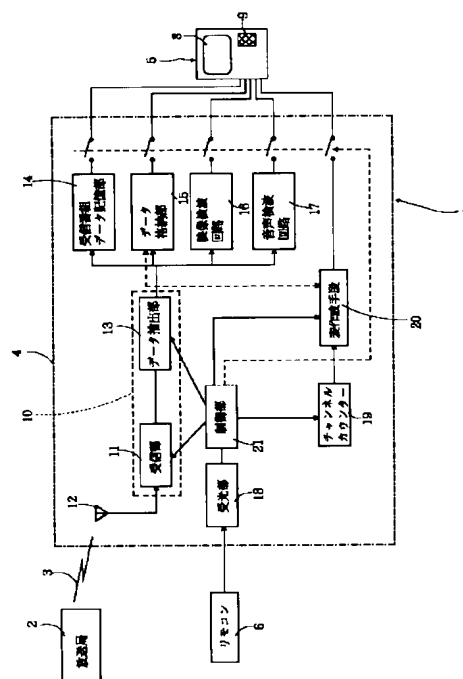
東京都千代田区外神田4丁目11番5号 株式会社船井電機研究所内

(54) 【発明の名称】 番組選局ガイド装置

(57) 【要約】 (修正有)

【課題】 受信可能か不可かを視認可能で、かつ表示されたチャンネルの中から受信可能なチャンネルを指示する番組選局ガイド装置を提供する。

【解決手段】 番組選局ガイド装置1は、放送局から送られてくる放送電波を受信しその中からチャンネルを選局受信すると共に、放送電波から現在時刻に関するデータと各チャンネルで送られる番組情報に関するデータとを抽出する選局受信手段10と、抽出した各データを記憶格納するデータ格納部15と、選局受信されたチャンネルをカウントし記憶する記憶手段19に記憶されたデータ及びデータ記憶部15に格納された各データとに基づき各チャンネル毎に現在時刻において受信可能か不可かが表示される高視聴チャンネル順番表を作成する表作成部20を備えた受信装置4と、表示手段5とを有する。この高視聴チャンネル順番表に表示されたチャンネルの中から任意のチャンネルを表示して選局受信させる。



## 【特許請求の範囲】

【請求項1】 複数のチャンネルの中から所望のチャンネルを選局受信すると共に、放送電波を受信した際にその放送電波から少なくとも現在時刻に関するデータと各チャンネルで送られる番組の情報に関するデータとを抽出する選局受信手段と、上記選局受信手段で抽出した各データを記憶格納するデータ格納部と、上記選局受信手段で所定時間を超えて選局受信された上記チャンネルをカウントし記憶する記憶手段と、この記憶手段に記憶された内容に基づき上記選局受信手段で選局受信されたカ  
10 ウント数の多いチャンネルを上位から順番に並べた高視聴チャンネル順番表を作成する表作成手段と、を備えた受信装置と、上記受信装置で選局受信されたチャンネルで送られた番組を表示する表示手段と、有すると共に、上記データ格納部に格納された各データに基づいて、上記高視聴チャンネル順番表を各チャンネル毎に現在時刻において受信可能か不可かを視認できる状態で上記表示手段に表示し、その視聴可能なチャンネルの中から任意のチャンネルを指示することによって、上記受信装置にその指示されたチャンネルを選局受信させることを特徴とする番組選局ガイド装置。

【請求項2】 複数のチャンネルの中から所望のチャンネルを選局受信すると共に、放送電波を受信した際にその放送電波から少なくとも現在時刻に関するデータと各チャンネルで送られる番組の情報に関するデータとを抽出する選局受信手段と、上記選局受信手段で抽出した各データを記憶格納するデータ格納部と、上記選局受信手段で選局受信された受信時間をチャンネル毎にカウントし記憶する記憶手段と、この記憶手段に記憶された内容に基づき上記選局受信手段で選局受信された受信時間の  
20 長いチャンネルを上位から順番に並べた高視聴チャンネル順番表を作成する表作成手段と、を備えた受信装置と、上記受信装置で選局受信されたチャンネルで送られた番組を表示する表示手段と、有すると共に、上記データ格納部に格納された各データに基づき、上記高視聴チャンネル順番表を各チャンネル毎に現在時刻において受信可能か不可かを視認できる状態で上記表示手段に表示し、その視聴可能なチャンネルの中から任意のチャンネルを指示することによって、上記受信装置にその指示されたチャンネルを選局受信させることを特徴とする番組選局ガイド装置。

【請求項3】 複数のチャンネルの中から所望のチャンネルを選局受信すると共に、放送電波を受信した際にその放送電波から少なくとも現在時刻に関するデータと各チャンネルで送られる番組の情報に関するデータとを抽出する選局受信手段と、上記選局受信手段で抽出した各データを記憶格納するデータ格納部と、上記選局受信手段で所定時間を超えて選局受信された上記チャンネルを  
30 カウントし記憶する記憶手段と、この記憶手段に記憶された内容に基づき上記選局受信手段で選局受信されたカ

ウント数の多いチャンネルを上位から順番に並べた高視聴チャンネル順番表を作成する表作成手段と、を備えた受信装置と、上記受信装置で選局受信されたチャンネルで送られた番組を表示する表示手段と、有すると共に、上記データ格納部に格納された各データに基づき、上記高視聴チャンネル順番表を現在時刻において受信不可のチャンネルを削除した状態で上記表示手段に表示し、この表示手段に表示されたチャンネルの中から任意のチャンネルを指示することによって、上記受信装置にその指示されたチャンネルを選局受信させることを特徴とする番組選局ガイド装置。

【請求項4】 複数のチャンネルの中から所望のチャンネルを選局受信すると共に、放送電波を受信した際にその放送電波から少なくとも現在時刻に関するデータと各チャンネルで送られる番組の情報に関するデータとを抽出する選局受信手段と、上記選局受信手段で抽出した各データを記憶格納するデータ格納部と、上記選局受信手段で選局受信された受信時間をチャンネル毎にカウントし記憶する記憶手段と、この記憶手段に記憶された内容に基づき上記選局受信手段で選局受信された受信時間の  
40 長いチャンネルを上位から順番に並べた高視聴チャンネル順番表を作成する表作成手段と、を備えた受信装置と、上記受信装置で選局受信されたチャンネルで送られた番組を表示する表示手段と、有すると共に、上記データ格納部に格納された各データに基づき、上記高視聴チャンネル順番表を現在時刻において受信不可のチャンネルを削除した状態で上記表示手段に表示し、この表示手段に表示されたチャンネルの中から任意のチャンネルを指示することによって、上記受信装置にその指示されたチャンネルを選局受信させることを特徴とする番組選局ガイド装置。

【請求項5】 複数のチャンネルの中から所望のチャンネルを選局受信するための選局受信手段と、上記チャンネルで送られる番組を視聴する視聴者を識別させるための識別手段と、上記選局受信手段で選局受信されたチャンネルを上記視聴者別にカウントし記憶する記憶手段と、この記憶手段に記憶された視聴者別のデータ内容に基づき上記選局受信手段で選局受信された受信状況の多いチャンネルを上位から順番に並べた個別高視聴チャンネル順番表を視聴者毎に作成する表作成手段と、を備えた受信装置と、上記受信装置で選局受信されたチャンネルで送られた番組を表示する表示手段と、有すると共に、上記個別高視聴チャンネル順番表を上記表示手段に表示し、この表示手段に表示されたチャンネルの中から任意のチャンネルを指示することによって、上記受信装置にその指示されたチャンネルを選局受信させることを特徴とする番組選局ガイド装置。

【請求項6】 前記個別高視聴チャンネル順番表は、各チャンネル毎に現在時刻において受信可能か不可かを視  
50 認できる状態で前記表示手段に表示され、その視聴可能



なチャンネルの中から任意のチャンネルが指示されることによって、前記受信装置にその指示されたチャンネルを選局受信させることを特徴とする請求項5記載の番組選局ガイド装置。

【請求項7】 前記個別高視聴チャンネル順番表は、現在時刻において受信不可のチャンネルを削除した状態で前記表示手段に表示され、この表示手段に表示されたチャンネルの中から任意のチャンネルが指示されることによって、前記受信装置にその指示されたチャンネルを選局受信させることを特徴とする請求項5記載の番組選局ガイド装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 本発明は、例えば衛星放送やCATV（ケーブルテレビジョン）放送等の多チャンネル放送システムに使用して好適な番組選局ガイド装置に関する。

【0002】

【従来の技術】 近年のテレビジョン放送は、例えば、衛星放送やCATV（ケーブルテレビジョン）放送等のように非常にチャンネル数の多いものが普及してきている。このような多チャンネル放送では、各チャンネルから様々なジャンルの番組が放送され、視聴者はその多数あるチャンネルの中から、各個人の趣向に合わせた専門性の高い番組を選ぶことが可能となり飛躍的に利便性が向上している反面、それらのチャンネルを検索する操作が複雑になるという欠点を有している。

【0003】 このような欠点を解消すべく、従来より、視聴者が自身の所望するチャンネルを容易に検索するための装置が種々検討されている。例えば、特開平7-15677号公報に記載された番組選局装置は、視聴者が選局したチャンネルの選局回数を装置内に備えた記憶部に記憶させ、その記憶されたデータに基づいて選局回数の多い順序に並べて画面に表示させるものとなっている。この装置によれば、特に登録等の操作を必要とせず、視聴者がチャンネルを選局するだけで自動的にその選局操作が選局回数としてカウントされる。そしてカウントされたデータは、自動的に集計され、視聴者が操作することにより画面に表示される。そのため、視聴者は、視聴頻度の高いチャンネルを容易に画面に呼び出すことができると共に、それを画面上で指示するだけでチャンネルを簡単に切り換えることが可能となる。

【0004】

【発明が解決しようとする課題】 しかしながら、上述した装置では、視聴者の操作によって画面上に表示されたチャンネルが、時間によっては選択できない場合が生じる。すなわち、チャンネルによっては、24時間放送のものあれば、そうでないものもあり、視聴者が視聴する時間によっては、放送されていないチャンネルもあるからである。このような場合、例えば視聴者が操作選択し

たチャンネルがその現在時刻において放送されていないチャンネルであるとする、視聴者は、再度選局回数の多いチャンネルの順序に並べられた番組表を表示する画面に一旦戻る操作をし、さらに他のチャンネルを指示することによって他のチャンネルを呼び出すか、または放送中のチャンネルの番号をダイレクトに入力して放送中のチャンネルを呼び出すかすることとなる。しかしながらチャンネルの再入力を行う際も、そのチャンネルが放送中かどうかを番組表等で調べてから入力する必要が生じ、利便性にかけるという問題が生じる。

【0005】 また、視聴者によっては、テレビ受信機を家族構成員等、複数の人と共同で使用している場合もあり、各視聴者におけるテレビの視聴時間には、通常、ばらつきが生じる。そのため、各視聴者の中には、あまりテレビを見る機会がなく、したがって選局回数の少ない人もいる。それにもかかわらず、チャンネル選局時には一律に選局回数がカウントされてしまうため、選局回数の多い順序に並べられた番組表中には、視聴時間の少ない視聴者の好みのチャンネルが表示されない可能性が高い。このように、視聴回数の少ない視聴者にとっては、上述した装置では自分の好みのチャンネルを検索できない可能性があるという問題が生じる。

【0006】 本発明の目的は、上述した問題点を鑑みて、視聴者の視聴時間によらずどのような時間においても、受信可能なチャンネルを表示し、かつ表示されたチャンネルを選局するガイドとなる番組選局ガイド装置を提供することにある。また、本発明の目的は、複数の視聴者が共同で使用する場合においても、各視聴者が自分の好みのチャンネルを容易に検索し選局することが可能な番組選局ガイド装置を提供することにある。

【0007】

【課題を解決するための手段】 上述した目的を鑑みて、請求項1記載の番組選局ガイド装置は、複数のチャンネルの中から所望のチャンネルを選局受信すると共に、放送電波を受信した際にその放送電波から少なくとも現在時刻に関するデータと各チャンネルで送られる番組の情報に関するデータとを抽出する選局受信手段と、選局受信手段で抽出した各データを記憶格納するデータ格納部と、選局受信手段で所定時間を超えて選局受信されたチャンネルをカウントし記憶する記憶手段と、この記憶手段に記憶された内容に基づき選局受信手段で選局受信されたカウント数の多いチャンネルを上位から順番に並べた高視聴チャンネル順番表を作成する表作成手段と、を備えた受信装置と、受信装置で選局受信されたチャンネルで送られた番組を表示する表示手段と、を有すると共に、データ格納部に格納された各データに基づいて、高視聴チャンネル順番表を各チャンネル毎に現在時刻において受信可能か不可かを視認できる状態で表示手段に表示し、その視聴可能なチャンネルの中から任意のチャンネルを指示することによって、受信装置にその指示され

たチャンネルを選局受信させるようになっている。

【0008】そのため、選局受信されたカウント数の多い順番に表示した高視聴チャンネル順番表に、受信電波から送られてくる番組情報及び現在時刻のデータの内容を反映させることとなり、これによって現在時刻において受信可能かどうかを視聴者が視認でき、受信可能なチャンネルの中から選局をすることが可能となる。なお、所定時間以下の受信の場合はカウントされないため、視聴する意志がなくチャンネルを単に回しているだけの場合、加算されないようになる。

【0009】また、請求項2記載の番組選局ガイド装置は、複数のチャンネルの中から所望のチャンネルを選局受信すると共に、放送電波を受信した際にその放送電波から少なくとも現在時刻に関するデータと各チャンネルで送られる番組の情報に関するデータとを抽出する選局受信手段と、選局受信手段で抽出した各データを記憶格納するデータ格納部と、選局受信手段で選局受信された受信時間をチャンネル毎にカウントし記憶する記憶手段と、この記憶手段に記憶された内容に基づき選局受信手段で選局受信された受信時間の長いチャンネルを上位から順番に並べた高視聴チャンネル順番表を作成する表作成手段と、を備えた受信装置と、受信装置で選局受信されたチャンネルで送られた番組を表示する表示手段と、を有すると共に、データ格納部に格納された各データに基づき、高視聴チャンネル順番表を各チャンネル毎に現在時刻において受信可能か不可かを視認できる状態で表示手段に表示し、その視聴可能なチャンネルの中から任意のチャンネルを指示することによって、受信装置にその指示されたチャンネルを選局受信させるようになっている。

【0010】そのため、選局受信された時間の長い順番に表示した高視聴チャンネル順番表に、受信電波から送られてくる番組情報及び現在時刻のデータの内容を反映させることとなり、これによって現在時刻において受信可能かどうかを視聴者が視認でき、受信可能なチャンネルの中から選局をすることが可能となる。

【0011】また、請求項3記載の番組選局ガイド装置は、複数のチャンネルの中から所望のチャンネルを選局受信すると共に、放送電波を受信した際にその放送電波から少なくとも現在時刻に関するデータと各チャンネルで送られる番組の情報に関するデータとを抽出する選局受信手段と、選局受信手段で抽出した各データを記憶格納するデータ格納部と、選局受信手段で所定時間を超えて選局受信されたチャンネルをカウントし記憶する記憶手段と、この記憶手段に記憶された内容に基づき選局受信手段で選局受信されたカウント数の多いチャンネルを上位から順番に並べた高視聴チャンネル順番表を作成する表作成手段と、を備えた受信装置と、受信装置で選局受信されたチャンネルで送られた番組を表示する表示手段と、を有すると共に、データ格納部に格納された各デ

ータに基づき、高視聴チャンネル順番表を現在時刻において受信不可のチャンネルを削除した状態で表示手段に表示し、この表示手段に表示されたチャンネルの中から任意のチャンネルを指示することによって、選局受信手段にその指示されたチャンネルを選局受信させるようになっている。

【0012】そのため、選局受信されたカウント数の多い順番に表示した高視聴チャンネル順番表に、受信電波から送られてくる番組情報及び現在時刻のデータの内容を反映させることとなり、これによって現在時刻において受信可能なチャンネルのみを視聴者が視認でき、かつ選局することが可能となる。

【0013】また、請求項4記載の番組選局ガイド装置は、複数のチャンネルの中から所望のチャンネルを選局受信すると共に、放送電波を受信した際にその放送電波から少なくとも現在時刻に関するデータと各チャンネルで送られる番組の情報に関するデータとを抽出する選局受信手段と、選局受信手段で抽出した各データを記憶格納するデータ格納部と、選局受信手段で選局受信された受信時間をチャンネル毎にカウントし記憶する記憶手段と、この記憶手段に記憶された内容に基づき選局受信手段で選局受信された受信時間の長いチャンネルを上位から順番に並べた高視聴チャンネル順番表を作成する表作成手段と、を備えた受信装置と、受信装置で選局受信されたチャンネルで送られた番組を表示する表示手段と、を有すると共に、データ格納部に格納された各データに基づき、高視聴チャンネル順番表を現在時刻において受信不可のチャンネルを削除した状態で表示手段に表示し、この表示手段に表示されたチャンネルの中から任意のチャンネルを指示することによって、受信装置にその指示されたチャンネルを選局受信させるようになっている。

【0014】そのため、選局受信された時間の長い順番に表示した高視聴チャンネル順番表に、受信電波から送られてくる番組情報及び現在時刻のデータの内容を反映させることとなり、これによって現在時刻において受信可能なチャンネルのみを視聴者が視認でき、かつ選局することが可能となる。

【0015】また、請求項5記載の番組選局ガイド装置は、複数のチャンネルの中から所望のチャンネルを選局受信するための選局受信手段と、番組を視聴する視聴者を識別させるための識別手段と、選局受信手段で選局受信されたチャンネルを視聴者別にカウントし記憶する記憶手段と、この記憶手段に記憶された視聴者別のデータ内容に基づき選局受信手段で選局受信された受信状況の多いチャンネルを上位から順番に並べた個別高視聴チャンネル順番表を視聴者毎に作成する表作成手段と、を有する受信装置と、受信装置で選局受信されたチャンネルで送られた番組を表示する表示手段と、を有すると共に、個別高視聴チャンネル順番表を表示手段に表示し、

この表示手段に表示されたチャンネルの中から任意のチャンネルを指示することによって、受信装置にその指示されたチャンネルを選局受信させるようになっている。そのため、各視聴者毎に作成された個別高視聴チャンネル順番表を、各視聴者が自分専用のものとして視認することができ、その中からチャンネルを選局することが可能となる。

【0016】さらに、請求項6記載の発明は、請求項5記載の番組選局ガイド装置において、個別高視聴チャンネル順番表は、各チャンネル毎に現在時刻において受信可能か不可かを視認できる状態で表示手段に表示され、その視聴可能なチャンネルの中から任意のチャンネルが指示されることによって、受信装置にその指示されたチャンネルを選局受信させるようになっている。そのため、現在時刻において受信可能かどうかを視聴者が視認でき、受信可能なチャンネルの中から選局することが可能となる。

【0017】また、請求項7記載の発明は、請求項5記載の番組選局ガイド装置において、個別高視聴チャンネル順番表は、現在時刻において受信不可のチャンネルを削除した状態で前記表示手段に表示され、この表示手段に表示されたチャンネルの中から任意のチャンネルが指示されることによって、受信装置にその指示されたチャンネルを選局受信させるようになっている。そのため、現在時刻において受信可能なチャンネルのみを視聴者が視認でき、かつ選局することが可能となる。

#### 【0018】

【発明の実施の形態】本発明の第1の実施の形態の番組選局ガイド装置について、図1から図8に示して説明する。番組選局ガイド装置1は、図1に示すように、放送局2から複数のチャンネルで送られてくる放送電波3を受信し、その中から所望のチャンネルを選局する受信装置としてのチューナー4と、チューナー4で選局受信されたチャンネルで送られた番組を表示する表示手段としてのモニター装置5と、を備えている。なお、チューナー4は、選局操作や予約操作等の各種操作を行うためのリモコン6によって動作させることが可能となっている。

【0019】放送局2から送られてくる放送電波3は、図2に示すように、各種デジタルデータを複数のパケットに格納しそれらを連続的につなげて形成されたトランスポンダ7として送信されてくるものとなっている。このトランスポンダ7には、各々無線周波数（RF=Radio Frequency）が割り振られており、チューナー4はその無線周波数を調節することにより複数送られてくるトランスポンダ7のうちの1つを受信することが可能となっている。

【0020】各トランスポンダ7には、4～8チャンネル分の各番組の映像データ7a及び音声データ7bが含まれている。映像データ7aは、4～8チャンネル分の

番組の映像に関するデータを1つのパケットに格納したものとになっている。なお、1つのチャンネル分のデータは、その番組を標準画面で表示させるためのデータや、ワイド画面で表示させるためのデータ等、複数の画面データで構成されている。そして、チューナー4でチャンネル及び画面の形態を選択することにより、映像データ7a内の必要なデータが抽出されてモニター装置5へ伝送される。これによって、そのチャンネルで送られている番組の映像が、モニター装置5のディスプレイ8に出力されることとなる。なお、この第1の実施の形態では、映像データ7aは、1つのパケット内に格納されているが、2つないしそれ以上のパケットに分けて格納されてもよい。

【0021】また、音声データ7bは、4～8チャンネル分の番組の音声に関するデータを1つのパケットに格納したものとになっている。なお、1つのチャンネル分のデータは、その番組の音声を標準音声で出力させるためのデータや、副音声で出力させるためのデータや、他の言語によって出力させるためのデータ等、複数のデータで構成されている。そして、チューナー4でチャンネル及び音声の形態を選択することにより、音声データ7b内の必要なデータが抽出されてモニター装置5へ伝送される。これによって、そのチャンネルで送られている番組の音声は、モニター装置5のスピーカー9に出力されることとなる。なお、音声データ7bも映像データ7aと同様、この第1の実施の形態では、1つのパケット内に格納されているが、2つないしそれ以上のパケットに分けて格納されてもよい。

【0022】一方、トランスポンダ7には、このトランスポンダ7内のチャンネルで送られる番組に関する受信番組データ7cと、放送局2から送られる各チャンネルの番組の情報に関するデータ（以下、放送データという）7dと、現在時刻に関するデータであるクロックデータ7eとが、そのトランスポンダ7内の映像データ7a及び音声データ7bに重畳された状態で共に含まれている。

【0023】なお、受信番組データ7cは、そのトランスポンダ7内に格納された4～8チャンネル分の各番組の放送日、放送時間、チャンネル、ジャンル、番組内容及び番組名等の複数の番組情報で構成されている。この受信番組データ7cは、例えば、放送時間が途中で変更になる場合や放送時間が延長される場合等に関しては、その都度新しい情報に更新されるようになっている。この受信番組データ7cは、トランスポンダ7がチューナー4の選局受信手段10の受信部11にアンテナ12を介して受信されると、チューナー4のデータ抽出部13によってそのトランスポンダ7の中から抽出される。この抽出された受信番組データ7cは、受信番組データ記憶部14に記憶格納される。この受信番組データ記憶部14に格納された受信番組データ7cは、リモコン6の

操作により、その中の必要な情報をモニター装置5のディスプレイ8に呼び出すことが可能となっている。

【0024】また、放送データ7dは、放送局2から各チャンネルで送られる全番組の情報に関するデータで構成されており、各チャンネル毎の番組名と放送時間を表形式に表したタイムテーブルとなっている。この放送データ7dは、トランスポンダ7がチューナー4の選局受信手段10の受信部11にアンテナ12を介して受信されると、チューナー4のデータ抽出部13によってそのトランスポンダ7の中から抽出される。そして、その抽出された放送データ7dは、データ格納部15に記憶格納される。なお、放送データ7dのデータの内容は、1日1回程度、例えば総じて視聴者の受信頻度の低い時間帯、例えば早朝の4時等に更新されるものとなっている。

【0025】また、クロックデータ7eは、現在時刻に関するデータとなっており、数秒おきに更新された状態で送られてくる。このクロックデータ7eは、トランスポンダ7がチューナー4の選局受信手段10の受信部11にアンテナ12を介して受信されると、チューナー4のデータ抽出部13によってそのトランスポンダ7の中から抽出される。そして、その抽出されたクロックデータ7eは、データ格納部15に記憶格納される。

【0026】受信装置としてのチューナー4は、チャンネル番号を指定することにより、そのチャンネル番号に合致した無線周波数で放送局2から送られてくるトランスポンダ7を選択して受信し、そのトランスポンダ7内の4～8チャンネルのうちチャンネル番号に合致した番組に関するデータを抽出してモニター装置5へ伝送することによって、モニター装置5に所望の番組を表示させるものとなっている。また、チューナー4は、所定時間を超えて選局受信されたチャンネルをカウントし、そのカウント数の多いチャンネルを上位から順番に並べた高視聴チャンネル順番表23をモニター装置5に表示させることが可能なものとなっている。なお、このときモニター装置5に表示される高視聴チャンネル順番表23は、現在時刻において視聴可能か否かを視認できるような画面となっている。そして、第1の実施の形態の番組選局ガイド装置1は、高視聴チャンネル順番表23に表示された視聴可能なチャンネルの中から任意のチャンネルを指示することによって、その指示されたチャンネルをチューナー4に選局受信させるものとなっている。

【0027】チューナー4は、放送局2から送られてくる放送電波3の複数のチャンネルの中から所望のチャンネルを選局受信すると共に、放送電波3を受信した際にその放送電波3のトランスポンダ7の中から各種デジタルデータを抽出する選局受信手段10を有している。この選局受信手段10は、指定されたチャンネル番号と合致した無線周波数に受信周波数を切り換える機能を有する受信部11と、この受信部11で受信した放送電波3

のトランスポンダ7の複数のチャンネルの中から、指定されたチャンネルに合致したチャンネルにおける必要なデータを随時抽出するデータ抽出部13とから構成されている。

【0028】そして、選局受信手段10で受信されたトランスポンダ7の中の4～8チャンネルのうち、データ抽出部13で抽出されたチャンネルの映像データ7a及び音声データ7bが、選局受信手段10からそれぞれ映像検波回路16及び音声検波回路17を介してモニター装置5に伝送される。これによって、選局受信装置10で選局受信されたチャンネルの番組が、モニター装置5に表示されるようになっている。なお、データ抽出部13は、トランスポンダ7内の映像データ7a及び音声データ7bの抽出だけでなく、その他のデジタル情報も抽出しそれを受信番組データ記憶部14やデータ格納部15に伝送するものとなっている。

【0029】また、チューナー4は、リモコン6からの赤外線信号による命令信号を受信する受光部18と、選局受信手段10で所定時間を超えて選局受信されたチャンネルをカウントし記憶する記憶手段としてのチャンネルカウンタ19と、チャンネルカウンタ19でカウントされた選局受信チャンネルをカウント数の上位から順番に並べた高視聴チャンネル順番表23を作成する表作成手段20と、受光部18に入力された命令信号によりチューナー4の各部を制御駆動する制御部21と、を有している。

【0030】受光部18は、リモコン6で生成された赤外線信号による命令信号を受信する手段となっている。この受光部18で受信された命令信号は、制御部21に入力されるようになっている。この命令信号を得ることによって、制御部21は各部を制御駆動するようになっている。チャンネルカウンタ19は、選局受信手段10が所定時間を超えて特定のチャンネルを選局受信した場合に、そのチャンネルをカウントし記憶する記憶手段となっている。すなわち、制御部21は、選局受信手段10で選局受信しているチャンネル番号をモニターし、その受信時間を制御部21内に備えたタイマー22（図4参照）で計測している。そして、制御部21は、特定のチャンネルが所定時間を超えて選局受信された際に、そのことをチャンネルカウンタ19へ伝送する。これによって、チャンネルカウンタ19は、選局受信されたチャンネル番号をチャンネル毎にカウントし記憶できるようになっている。

【0031】なお、このチャンネルカウンタ19でカウントし記憶された内容は、表作成手段20へ伝送される。そして、表作成手段20は、チャンネルカウンタ19でカウントし記憶された内容に基づいて、図3に示すような高視聴チャンネル順番表23を作成する。なお、一方、表作成手段20は、高視聴チャンネル順番表23を作成する際に、トランスポンダ7から抽出した現

在時刻に関するデータとなるクロックデータ7 e 及び各チャンネルで送られる番組情報に関するデータとなる放送データ7 dをデータ格納部1 5から取得する。すなわち、表作成手段2 0は、チャンネルカウンタ1 9でカウントし記憶されたデータと、データ格納部1 5に格納されたクロックデータ7 e 及び放送データ7 dの各データに基づいて高視聴チャンネル順番表2 3を作成する。

【0032】このため、高視聴チャンネル順番表2 3は、各チャンネルで送られる番組の放送時間と、各チャンネルの現在時刻における受信可能／不可の情報とが反映されたものとなっている。このように作成された高視聴チャンネル順番表2 3は、リモコン6を用いて操作し制御部2 1を駆動させることによって、表作成手段2 0からモニター装置5に送られ、モニター装置5のディスプレイ8に表示されるようになっている。

【0033】高視聴チャンネル順番表2 3は、図3に示すように、ある曜日における選局受信されたカウント数の多いチャンネルを上位から順番に並べたものとなっている。この高視聴チャンネル順番表2 3は、選択欄2 3 aと、順位欄2 3 bと、チャンネル表示欄2 3 cと、受信可否表示欄2 3 dと、放送中番組表示欄2 3 eと、視聴回数表示欄2 3 fと、ページめくり選択部2 3 gと、元の画面に戻るためのリターン部2 3 hとを備えている。そして、この高視聴チャンネル順番表2 3は、各チャンネル毎に現在時刻において受信可能か不可かを視認できる状態でモニター装置5に表示されると共に、その視聴可能なチャンネルの中から任意のチャンネルを指示することによってチューナー4にその指示されたチャンネルを選局受信させるものとなっている。

【0034】この高視聴チャンネル順番表2 3の一番左に位置する選択欄2 3 aは、視聴者が所望するチャンネルを選択し指定するためのものであり、リモコン6の操作により矢印型のカーソル2 3 jがこの欄内の複数のスペース内を上下に移動可能なものとなっている。そして、視聴者は、高視聴チャンネル順番表2 3内に所望するチャンネルがある場合には、カーソル2 3 jを所望するチャンネルを指示する枠内に合わせ、リモコン6の決定ボタン2 9 c (図4参照)を押すことによって、選択受信手段1 0をそのチャンネルに切り換え、そのチャンネルで送られている番組をディスプレイ8に表示させ視聴することが可能となっている。

【0035】また、選択欄2 3 aの右隣に位置する欄は、順位欄2 3 bとなっており、選択受信回数の多い順、すなわち1位から10位までのランキングが示されている。なお、この図3に示す表の下側に位置する「NEXT PAGE」と記されたページめくり選択部2 3 gにカーソル2 3 jを合わせて指示すると、次の順位、すなわち11位から20位までにランキングされたチャンネルが高視聴チャンネル順番表2 3に表示される。このページめくり選択部2 3 gの「NEXT PAGE」

の表示は、次の順位がない場合には表示されないようになっている。

【0036】さらに、順位欄2 3 bの右隣に位置する欄は、チャンネル番号を表すためのチャンネル表示欄2 3 cとなっている。また更に、その右隣の欄は、現在時刻においてチャンネル表示欄2 3 cに表示されたチャンネルが受信可能か不可かを視聴者が視認するための受信可否表示欄2 3 dとなっている。視聴者は、この受信可否表示欄2 3 dをチャンネル表示欄2 3 cと対照させて見ることにより、そのチャンネルが現在時刻において受信可能か不可かを視認することができる。

【0037】なお、受信可否表示欄2 3 dの右隣には、そのチャンネルで現在放送中の番組のタイトルを表示した放送中番組表示欄2 3 eが、また更に右隣にはそのチャンネルの所定期間(図3においては、'98.4~6の3ヶ月間)における視聴回数を表した視聴回数表示欄2 3 fが設けられている。さらに、この表の下側部分には、この高視聴チャンネル順番表2 3の表示を止めて元のチャンネルへ戻るためのリターン部2 3 hが設けられている。なお、この第1の実施の形態において高視聴チャンネル順番表2 3は、ある曜日(図3においては月曜日)におけるデータを所定期間において集計して表示したものであるが、その表示されるデータに関しては上述したものに限定されるものではなく、例えば最近の1週間分のデータや1ヶ月のデータでも良いし、あるいはこれら各種のデータを選択して表示させることができるものとしてもよい。

【0038】なお、本実施の形態の番組選局ガイド装置1は、上述したように、単に受信回数をカウントし受信回数の多い順に並べた表を作成するのではなく、放送局2から送られてくる放送データ7 d及びクロックデータ7 eに基づいて高視聴チャンネル順番表2 3を作成しているので、そのチャンネルが受信可能か否かを表中に表示させることができるものとなっている。さらに、例えば、番組途中で放送時間の変更や時間延長がある場合でも、そのデータに基づいて柔軟に対処できる等、種々の利点を有している。

【0039】一方、チューナー4内の制御部2 1は、図4に示すように、周波数切り換え駆動回路2 4と、選局回路2 5と、比較回路2 6と、メモリー2 7と、タイマー2 2と、これらの各部を駆動制御するCPU2 8とから構成されている。そして、リモコン6から受光部1 8に、チャンネルの選局や番組の受信予約等の指示信号が入力されると、その指示信号によりCPU2 8が動作を開始し、CPU2 8が制御部2 1の各部を制御駆動するようになっている。

【0040】周波数切り換え駆動回路2 4は、CPU2 8によって制御駆動される。この周波数切り換え駆動回路2 4は、選局受信手段1 0の受信周波数を切り換えるための駆動回路となっている。また、選局回路2 5も、

周波数切り換え駆動回路24と同様に、CPU28によって制御駆動される、この選局回路25は、送られてきたトランスポンダ7内の各データのうち、選択されたチャンネルの番組に関するデータを、データ抽出部13に抽出させモニター装置5に出力させるための駆動回路となっている。

【0041】また、比較回路26は、受信番組データ記憶部14に格納された受信番組データ7cと、データ格納部15内に記憶格納された放送データ7dとを比較参照するための回路となっている。この比較回路26は、リモコン6の操作によりチャンネル選択の指示がなされた際、その指示されたチャンネルのデータが現在受信されているトランスポンダ7内にあるかどうか、すなわち受信番組データ記憶部14内に記憶保存されているかどうかを比較して検出する。そして、この検出結果をCPU28に伝送するようになっている。

【0042】なお、この検出の結果、現在受信されているトランスポンダ7内に選択したチャンネルのデータがない場合は、CPU28が、周波数切り換え駆動回路24を用いて選局受信手段10の周波数を切り換えるようになっている。なお、トランスポンダ7内の放送データ7dは、チャンネルと周波数とを照合可能とするための参照テーブルとなっている。そのため、CPU28は、受信番組データ記憶部14内に選択されたチャンネルのデータがない場合、データ格納部15内に格納された放送データ7dを検索する。これによって、CPU28は、選択されたチャンネルを含むトランスポンダ7の無線周波数を検出し受信できるようになっている。なお、入力したチャンネル番号では番組が受信できない場合、すなわち入力されたチャンネルに割り振られた放送がない場合は、CPU28からモニター装置5にその旨を知らせる信号が送信される。これによって、例えば、「そのチャンネルでは、放送電波を受信できません」等のメッセージをモニター装置5に表出させることが可能となっている。

【0043】また、検出の結果、現在受信されているトランスポンダ7内に選択されたチャンネルのデータがある場合は、CPU28は、選局回路25を用いてデータ抽出部13に、そのチャンネルの映像データ7a及び音声データ7bを抽出させる。これによって、選択されたチャンネルの映像データ7a及び音声データ7bが、それぞれ映像検波回路16及び音声検波回路17を介してモニター装置5に出力される。

【0044】また、メモリー27は、CPU28で行われている各部の制御動作、例えば、選局受信手段10の無線周波数やデータ抽出部13で抽出させている映像データ7a及び音声データ7bのチャンネル番号や受信予約の有無等を記憶格納しておくものとなっている。このメモリー27は、チューナー4の電源を切った場合も、その電源を切る前の状態のデータがメモリーされるよう

になっている。そのため、チューナー4は、電源を切った後、再び電源を入力すると、電源を切る前の状態に立ち上がるようになっている。

【0045】また、チューナー4の各手段を制御駆動させるためのリモコン6は、図5に示すように、番号入力ボタン29a、カーソルボタン29b及び決定ボタン29cからなるチャンネル番号入力ボタン29と、同チャンネル内で画面を切り換えるための画面切り換え用ボタン30と、同チャンネル内で音声を切り換えるための音声切り換え用ボタン31と、高視聴チャンネル順番表23を呼び出すための高視聴チャンネル呼び出しボタン32と、各種命令信号を送信するための発光部33と、を有している。また、リモコン6には、図6に示すように、電源バッテリー34と、各ボタンによって操作された内容に基づいて命令信号を生成するための命令信号発生部35が内蔵されている。

【0046】高視聴チャンネル呼び出しボタン32は、リモコン6の表面に形成されたワンタッチ式押しボタンで形成されており、視聴者がモニター装置5のディスプレイ8に高視聴チャンネル順番表23を呼び出したい場合に、押し操作をすることにより高視聴チャンネル順番表23をディスプレイ8に表示させるものとなっている。すなわち、高視聴チャンネル呼び出しボタン32を作動させ命令信号発生部35から発光部33を介して命令信号が送信されると、この命令信号がチューナー4に受信される。すると、チューナー4では、チャンネルカウンタ19にカウントされ記憶された内容と、データ格納部15に格納された放送データ7d及びクロックデータ7eとに基づいて表作成手段20によって作成された高視聴チャンネル順番表23が、制御部21の制御によってモニター装置5に伝送される。これによって、高視聴チャンネル順番表23が、ディスプレイ8に表示される。視聴者は、この高視聴チャンネル順番表23内の任意のチャンネルを指示することによって、チューナー4にそのチャンネルを選局受信させることができる。

【0047】上述したように構成された番組選局ガイド装置1において、高視聴チャンネル順番表23を作成するためのデータを作成し、チャンネルカウンタ19に保存する動作について図7に示して説明する。まず視聴者は、番号入力ボタン29を用いるか、後述する高視聴チャンネル順番表23からチャンネルを選択する等して、チューナー4に任意のチャンネルを選局受信させる（ステップS1）。これによって、このチャンネルによって送られる番組の映像データ7a及び音声データ7bが映像検波回路16及び音声検波回路17を介してモニター装置5に出力される（ステップS2）。

【0048】なお、このときチューナー4に選局受信されているチャンネルを含むトランスポンダ7は、この番組の映像データ7a及び音声データ7bに、このトランスポンダ7で送られる全てのチャンネルの番組に関する

データである受信番組データ7cと、放送局2の各チャンネルで送られる番組情報に関するデータである放送データ7dと、現在時刻に関するデータであるクロックデータ7eとを重畳させた状態で、放送局2から送られてくる。チューナー4では、このように送られたトランスポンダ7を受信した際に、このトランスポンダ7内の各種デジタルデータのうちの必要な情報を抽出して記憶保存する(ステップS3)。

【0049】すなわち、チューナー4は、受信番組データ7cの必要情報をデータ抽出部13で抽出し、それを受信番組データ記憶部14に格納する。また、チューナー4は、放送データ7dの必要情報及びクロックデータ7eをデータ抽出部13で抽出し、それらをデータ格納部15に格納する。なお、放送局2から送られてくるトランスポンダ7内の放送データ7dは、1日1回程度の割合で、そのデータの内容が更新される。また、クロックデータ7eは、数秒おきに更新される。チューナー4では、データ内容に更新がある場合は、その更新したデータをデータ格納部15に格納する(ステップS4)。

【0050】一方、このようにチャンネルの選局受信が始まると、チューナー4の制御部21内に備えられたCPU28は、この選局受信されたチャンネルをモニターする(ステップS5)。すなわち、CPU28は、選局受信されたチャンネルの番号をメモリー27に記憶させると共に、タイマー22を駆動しその受信時間を計測させる(ステップS6)。そして、このチャンネルの選局受信が所定時間を超えた場合(YES)、CPU28はチャンネルカウンター19にその旨を伝達する(ステップS7)。一方、このチャンネルの選局受信が所定時間を超えない間に他のチャンネルに切り換えられたり電源がOFFになった場合には(NO)、CPU28はタイマー22をリセットしそのチャンネルのモニターを停止する(ステップS8)。

【0051】チャンネルカウンター19は、CPU28からチャンネルの選局受信が所定時間を超えた旨が伝えられると、そのチャンネルの受信回数をカウント(加算)し記憶する(ステップS9)。これによって、チャンネルカウンター19内には、どのチャンネルが何回、所定時間を超えて選局受信されたのデータが格納される。なお、後述するように表作成手段20は、リモコン6の操作により高視聴チャンネル呼び出しボタン32が押され際に、上述したようにチャンネルカウンター19に記憶されたデータに基づいて高視聴チャンネル順番表23を作成し、これをモニター装置5に出力させるようになっている。

【0052】次に、上述したように構成された番組選局ガイド装置1を用いて、視聴者が良く視聴しているチャンネルを上位から順番に並べた高視聴チャンネル順番表23をモニター装置5に出力させるまでの動作と、モニター装置5に出力させた高視聴チャンネル順番表23か

らチャンネルを選局受信するまでの動作について、図8に示して説明する。

【0053】上述したステップS2で、モニター装置5に出力された番組が視聴者の好みに合わない場合、視聴者は、リモコン6を操作して高視聴チャンネル順番表23をモニター装置5に表示させ、表示されたチャンネルの中から所望のチャンネルを指定することによってチャンネルを切り換えることが可能である。その場合、まず視聴者は、リモコン6の高視聴チャンネル呼び出しボタン32を押して操作する(ステップS10)。すると、リモコン6の命令信号発生部35で高視聴チャンネル順番表23をモニター装置5に表示させるための命令信号を生成され、この命令信号が発光部33からチューナー4へ送信される(ステップS11)。

【0054】チューナー4は、リモコン6から送信されてきた命令信号を、受光部18で受信しこれを制御部21のCPU28に伝送する(ステップS12)。CPU28は、この命令信号に従いチャンネルカウンター19を制御駆動し、チャンネルカウンター19内に格納された各チャンネル毎の選局受信回数をカウントしたデータを表作成手段20へ伝送させる(ステップS13)。これによって、表作成手段20は、チャンネルカウンター内に格納された選局受信回数に関するデータを取得する(ステップS14)。

一方、表作成手段20は、CPU28の制御によりデータ格納部15内に格納された放送データ7d及びクロックデータ7eを取得する(ステップS15)。

【0055】表作成手段20は、ステップS14及びステップS15で取得した各データに基づき以下の順序で高視聴チャンネル順番表23を作成する。まず、表作成手段20は、チャンネルカウンター19から送られてきた各チャンネル毎のカウント数を集計し、カウント数の多いチャンネルを高視聴チャンネル順番表23のチャンネル表示欄23cの上位から順番に並べ、そのチャンネルを書き込む(ステップS16)。このとき集計された各チャンネルの視聴回数は、それぞれの視聴回数表示欄23fに書き込まれる。

【0056】次に、表作成手段20は、データ格納部15から取得した放送データ7d及びクロックデータ7eに基づいて、各チャンネルについて現在時刻において受信可能か不可かを判断する(ステップS17)。そして、ステップS17で判断した結果、その日の放送が終了していたり、視聴者と放送局2との契約が満了してしまった等の理由により、現在時刻において受信が不可(NO)のチャンネルには、そのチャンネルの受信可否表示欄23dに「×」が書き込まれる(ステップS18)。一方、ステップS17で判断した結果、現在時刻において受信可能(YES)のチャンネルには、そのチャンネルの受信可否表示欄23dに「可」が書き込まれる(ステップS19)。

【0057】さらに、ステップS15で取得した放送データ7dに基づき、ステップS19で「可」の表示がなされたチャンネルの放送中番組表示欄23eには、各チャンネルで現在時刻において放送されている番組のタイトルが書き込まれる(ステップS20)。このようにして高視聴チャンネル順番表23の各欄の書き込みが終了すると、この高視聴チャンネル順番表23は、CPU28の制御によりモニター装置5へ伝送され、モニター装置5のディスプレイ8に表示される(ステップS21)。なお、ステップS18で、受信可否表示欄23dに受信不可のマークとなる「×」が書き込まれたチャンネルについては、ランキングの順位と視聴回数が表示されるのみで、この画面から選局受信をすることはできないようになっている。

【0058】視聴者は、このようにモニター装置5に表示された高視聴チャンネル順番表23のチャンネル番号及び番組のタイトル等を参照し、受信可否表示欄23dに受信可能のマーク「可」が表示されたチャンネルの中で所望のチャンネルがある場合(YES)に、そのチャンネルをリモコン6のカーソルボタン29b及び決定ボタン29cを用いて指示する(ステップS22)。なお、高視聴チャンネル順番表23に表示されたチャンネルの中に所望のチャンネルがない場合(NO)には、リモコン6を用いて高視聴チャンネル順番表23内のリターン部23hを指示することによって元のチャンネルの画面に戻ることができる(ステップS23)。チャンネルを切り換える旨の信号が、リモコン6からチューナー4に送信される。これによって、制御部21が選局受信手段10をそのチャンネルに切り換えるように制御駆動し(ステップS24)、視聴者の所望のチャンネルで送られる番組がモニター装置5に出力される(ステップS25)。

【0059】次に、本発明の第2の実施の形態の番組選局ガイド装置51について、図9から図17を用いて説明する。番組選局ガイド装置51は、図9に示すように、第1の実施の形態と同様、放送局52から複数のチャンネルで送られてくる放送電波53を受信し、その中から所望のチャンネルを選局する受信装置としてのチューナー54と、チューナー54で選局受信されたチャンネルで送られた番組を表示する表示手段としてのモニター装置55と、を備えている。なお、チューナー54は、選局操作や予約操作等の各種操作を行うためのリモコン56によって動作させることが可能となっている。

【0060】放送局52から送られてくる放送電波53は、図10に示すように、各種デジタルデータを複数のパケットに格納しそれらを連続的につなげて形成されたトランスポンダ57として送信されてくるものとなっている。このトランスポンダ57には、各々無線周波数(RF=Radio Frequency)が割り振られており、チューナー54はその無線周波数を調節することにより複数

送られてくるトランスポンダ57のうちの1つを受信することが可能となっている。

【0061】各トランスポンダ57には、4~8チャンネル分の各番組の映像データ57a及び音声データ57bが含まれている。映像データ57aは、4~8チャンネル分の番組の映像に関するデータを1つのパケットに格納したものとなっている。なお、1つのチャンネル分のデータは、その番組を標準画面で表示させるためのデータや、ワイド画面で表示させるためのデータ等、複数の画面データで構成されている。そして、チューナー54でチャンネル及び画面の形態を選択することにより、映像データ57a内の必要なデータが抽出されてモニター装置55へ伝送される。これによって、そのチャンネルで送られている番組の映像が、モニター装置55のディスプレイ58に出力されることとなる。なお、この第2の実施の形態も第1の実施の形態と同様、映像データ57aは、1つのパケット内に格納されているが、2つないしそれ以上のパケットに分けて格納されてもよい。

【0062】また、音声データ57bは、4~8チャンネル分の番組の音声に関するデータを1つのパケットに格納したものとなっている。なお、1つのチャンネル分のデータは、その番組の音声を標準音声で出力させるためのデータや、副音声で出力させるためのデータや、他の言語によって出力させるためのデータ等、複数のデータで構成されている。そして、チューナー54でチャンネル及び音声の形態を選択することにより、音声データ57b内の必要なデータが抽出されてモニター装置55へ伝送される。これによって、そのチャンネルで送られている番組の音声が、モニター装置55のスピーカー59に出力されることとなる。なお、音声データ57bも映像データ57aと同様、1つのパケット内に格納されているが、2つないしそれ以上のパケットに分けて格納されてもよい。

【0063】一方、トランスポンダ57には、上述した第1の実施の形態におけるトランスポンダ7と同様のデジタルデータ、すなわち受信番組データ57cと、放送データ57dと、クロックデータ57cとが、そのトランスポンダ57内の映像データ57a及び音声データ57bに重畳された状態で共に含まれている。

【0064】受信番組データ57cは、トランスポンダ57がチューナー54の選局受信手段60の受信部61にアンテナ62を介して受信されると、チューナー54のデータ抽出部63によってそのトランスポンダ57の中から抽出される。この抽出された受信番組データ57cは、受信番組データ記憶部64に記憶格納される。この受信番組データ記憶部64に格納された受信番組データ57cは、リモコン56の操作により、その中の必要な情報をモニター装置55のディスプレイ58に呼び出すことが可能となっている。

【0065】また、放送データ57dは、トランスポン



ダ57がチューナー54の選局受信手段60の受信部61にアンテナ62を介して受信されると、チューナー54のデータ抽出部63によってそのトランスポンダ57の中から抽出される。そして、その抽出された放送データ57dは、データ格納部65に記憶格納される。なお、放送データ57dのデータの内容は、1日1回程度、例えば視聴者の受信頻度の低い時間帯に更新されるものとなっている。

【0066】また、クロックデータ57eは、現在時刻に関するデータとなっており、数秒おきに更新された状態で送られてくる。このクロックデータ57eは、トランスポンダ57がチューナー54の選局受信手段60の受信部61にアンテナ62を介して受信されると、チューナー54のデータ抽出部63によってそのトランスポンダ57の中から抽出される。そして、その抽出されたクロックデータ57eは、データ格納部65に記憶格納される。

【0067】受信装置としてのチューナー54は、チャンネル番号を指定することにより、そのチャンネル番号に合致した無線周波数で放送局52から送られてくるトランスポンダ57を選択して受信し、そのトランスポンダ57内の4～8チャンネルのうちチャンネル番号に合致した番組に関するデータを抽出してモニター装置55へ伝送することによって、モニター装置55に所望の番組を表示させるものとなっている。また、チューナー54は、リモコン6での操作により番組を視聴する視聴者を認識し、各視聴者毎に所定時間を超えて選局受信されたチャンネルをカウントし、そのカウント数の多いチャンネルを上位から順番に並べた個別高視聴チャンネル順番表73をモニター装置55に表示させることが可能なものとなっている。なお、このときモニター装置55に表示される個別高視聴チャンネル順番表73は、現在時刻において視聴可能か否かを視認できるような画面となっている。そして、第2の実施の形態の番組選局ガイド装置51では、個別高視聴チャンネル順番表73に表示された視聴可能なチャンネルの中から任意のチャンネルを指示することによって、その指示されたチャンネルをチューナー54に選局受信させるものとなっている。

【0068】チューナー54は、放送局52から送られてくる放送電波53の複数のチャンネルの中から所望のチャンネルを選局受信すると共に、放送電波53を受信した際にその放送電波53のトランスポンダ57の中から各種デジタルデータを抽出する選局受信手段60を有している。この選局受信手段60は、指定されたチャンネル番号と合致した無線周波数に受信周波数を切り換える機能を有する受信部61と、この受信部61で受信した放送電波53のトランスポンダ57の複数のチャンネルの中から、指定されたチャンネルに合致したチャンネルにおける必要なデータを随時抽出するデータ抽出部63とから構成されている。

【0069】そして、選局受信手段60で受信されたトランスポンダ57の中の4～8チャンネルのうち、データ抽出部63で抽出されたチャンネルの映像データ57a及び音声データ57bが、選局受信手段60からそれぞれ映像検波回路66及び音声検波回路67を介してモニター装置55に伝送される。これによって、選局受信装置60で選局されたチャンネルの番組が、モニター装置55に表示されるようになっている。なお、データ抽出部63は、トランスポンダ57内の映像データ57a及び音声データ57bの抽出だけでなく、その他のデジタル情報も抽出しそれを受信番組データ記憶部64やデータ格納部65に伝送するものとなっている。

【0070】また、チューナー54は、リモコン56からの赤外線信号による命令信号を受信する受光部68と、受光部68に入力された信号に基づき番組を視聴する視聴者を識別する識別手段としてのID認識部69と、選局受信手段60で所定時間を超えて選局受信されたチャンネルを視聴者別にカウントし記憶する記憶手段としてのチャンネルカウンタ70と、チャンネルカウンタ70に記憶された視聴者別のデータ内容に基づき選局受信チャンネルのカウント数を上位から順番に並べた個別高視聴チャンネル順番表73を作成する表作成手段71と、受光部68に入力された命令信号によりチューナー54の各部を制御駆動する制御部72と、を有している。

【0071】受光部68は、リモコン56で生成された赤外線信号による命令信号を受信する手段となっている。この受光部68で受信された命令信号は、制御部72に入力されるようになっている。この命令信号を得ることによって、制御部72は各部を制御駆動するようになっている。ID認識部69は、視聴者を特定するための操作を行うことによってリモコン56で生成されたID認識用の信号が受光部68に入力されると、この信号を読み取り視聴者を特定するためのものとなっている。ID認識部69は、ID認識用の信号を受け取ると、その旨を制御部72へ伝送するようになっている。

【0072】チャンネルカウンタ70は、ID認識部69が特定の視聴者を認識した後、その同じ視聴者の選局により選局受信手段60が所定時間を超えて特定のチャンネルを受信した場合、そのチャンネルがその視聴者によって選局受信されたことを個別にカウントし記憶する記憶手段となっている。すなわち、制御部72は、ID認識部69によって識別された視聴者を認識する。それと同時に、選局受信手段60で選局受信しているチャンネル番号をモニターし、その受信時間を制御部72内に備えたタイマー74(図12参照)に計測させる。そして、制御部72は、特定の視聴者によって特定のチャンネルが所定時間を超えて選局受信された際に、そのことをチャンネルカウンタ70へ伝送する。これによって、チャンネルカウンタ70は、特定の視聴者によ

て選局受信されたチャンネル番号を視聴者毎及びチャンネル毎にカウントし記憶するようになっている。

【0073】なお、このチャンネルカウンター70でカウントし記憶された内容は、表作成手段71へ伝送される。そして、表作成手段71は、チャンネルカウンター70で視聴者毎に個別にカウントし記憶された内容に基づいて、図11に示すような個別高視聴チャンネル順番表73を作成する。すなわち、この個別高視聴チャンネル順番表73は、視聴者毎にそれぞれカウントし記憶された内容に基づいてそれぞれ作成されるものとなっている。なお、一方、表作成手段71は、個別高視聴チャンネル順番表73を作成する際に、トランスポンダ57から抽出した現在時刻に関するデータとなるクロックデータ57e及び各チャンネルで送られる番組情報に関するデータとなる放送データ57dの各データをデータ格納部65から取得する。すなわち、表作成手段71は、チャンネルカウンター70でカウントし記憶された個別のデータ及びデータ格納部65に格納されたクロックデータ57eと放送データ57dに基づいて個別高視聴チャンネル順番表73を作成する。

【0074】このため、個別高視聴チャンネル順番表73は、各チャンネルで送られる番組の放送時間と、各チャンネルの現在時刻における受信可能／不可の情報とが反映されたものとなっている。このように作成された個別高視聴チャンネル順番表73は、リモコン56を用いて操作し制御部72を駆動させることによって、表作成手段71からモニター装置55に送られ、モニター装置55のディスプレイ58に表示されるようになっている。

【0075】個別高視聴チャンネル順番表73は、図11に示すように、ある視聴者がある曜日において選局受信したカウント数の多いチャンネルを上位から順番に並べたものとなっている。この個別高視聴チャンネル順番表73は、選択欄73aと、順位欄73bと、チャンネル表示欄73cと、受信可否表示欄73dと、放送中番組表示欄73eと、視聴回数表示欄73fと、ページめくり選択部73gと、元の画面に戻るためのリターン部73hと、視聴者表示部73jを備えている。そして、この個別高視聴チャンネル順番表73は、各チャンネル毎に現在時刻において受信可能か不可かを視認できる状態でモニター装置55に表示されると共に、その視認可能なチャンネルの中から任意のチャンネルを指示することによってチューナー54にその指示されたチャンネルを選局受信させるものとなっている。

【0076】この個別高視聴チャンネル順番表73の一番左に位置する選択欄73aは、視聴者が所望するチャンネルを選択し指定するためものとなっており、リモコン56の操作により矢印型のカーソル73kがこの欄内の複数のスペース内を上下に移動可能なものとなっている。そして、視聴者は、個別高視聴チャンネル順番表7

3内に所望するチャンネルがある場合には、カーソル73kを所望するチャンネルを指示する枠内に合わせ、リモコン56の決定ボタン80c（図13参照）を押すことによって、選択受信手段60をそのチャンネルに切り換え、そのチャンネルで送られている番組をディスプレイ58に表示させ視聴することが可能となっている。

【0077】また、選択欄73aの右隣に位置する欄は、順位欄73bとなっており、選択受信回数の多い順、すなわち1位から10位までのランキングが示されている。なお、この図11に示す表の下側に位置する「NEXT PAGE」と記されたページめくり選択部73gにカーソル73kを合わせて指示すると、次の順位、すなわち11位から20位までにランキングされたチャンネルが高視聴チャンネル順番表73に表示される。このページめくり選択部73gの「NEXT PAGE」の表示は、次の順位がない場合には表示されないようになっている。

【0078】さらに、順位欄73bの右隣に位置する欄は、チャンネル番号を表すためのチャンネル表示欄73cとなっている。また更に、その右隣の欄は、現在時刻においてチャンネル表示欄73cに表示されたチャンネルが受信可能か不可かを視聴者が視認するための受信可否表示欄73dとなっている。視聴者は、この受信可否表示欄73dをチャンネル表示欄73cと対照させて見ることにより、そのチャンネルが現在時刻において受信可能か不可かを視認することができる。

【0079】なお、受信可否表示欄73dの右隣には、そのチャンネルで現在放送中の番組のタイトルを表示した放送中番組表示欄73eが、また更に右隣にはそのチャンネルの所定期間（図11においては、'98.4～6の3ヶ月間）におけるある視聴者の視聴回数を表した視聴回数表示欄73fが設けられている。さらに、この表の下側部分には、この個別高視聴チャンネル順番表73の表示を止めて元のチャンネルへ戻るためのリターン部73hが設けられている。また更に、図11において上側には、視聴者の登録番号となる「ユーザー番号」を表示するための視聴者表示部73jが設けられている。この視聴者表示部73jは、リモコン6の操作により視聴者自身の名前を文字で登録することにより、その登録した名前を表示するようにしてもよい。

【0080】なお、第2の実施の形態の番組選局ガイド装置51は、上述したように、そのチューナー54におけるチャンネル毎の受信回数をカウントし、受信回数の多い順に並べるのみならず、その受信回数を視聴者別にカウントした表となっている。また、さらには、放送局52から送られてくる放送データ57d及びクロックデータ57eに基づいて個別高視聴チャンネル順番表73を作成しているので、現在時刻においてそのチャンネルが受信可能か否かを表示させることができるものとなっている。さらに、例えば、番組途中で放送時間の変更や

時間延長がある場合でも、そのデータに基づいて柔軟に対処できる等、種々の利点を有している。なお、この第2の実施の形態においては、特に放送局52から送られてくるデジタルデータに基づいて、現在時刻においてそのチャンネルが受信可能か不可かを表示するものに限定されず、単に、個別高視聴チャンネル順番表73を作成するものであっても良い。

【0081】一方、チューナー54内の制御部72は、図12に示すように、周波数切り換え駆動回路75と、選局回路76と、比較回路77と、メモリー78と、タイマー74と、これらの各部を駆動制御するCPU79とから構成されている。そして、リモコン56から受光部68に、視聴者を識別させるための信号や、チャンネルの選局及び番組の受信予約等の各種指示信号が入力されると、その指示信号によりCPU79が動作を開始し、CPU79が制御部72の各部を制御駆動するようになっている。

【0082】周波数切り換え駆動回路75は、CPU79によって制御駆動される。この周波数切り換え駆動回路75は、選局受信手段60の受信周波数を切り換えるための駆動回路となっている。また、選局回路76も周波数切り換え駆動回路75と同様にCPU79によって制御駆動される、この選局回路76は、送られてきたトランスポンダ57内の各データのうち、選択されたチャンネルの番組に関するデータを、データ抽出部63に抽出させモニター装置55に出力させるための駆動回路となっている。

【0083】また、比較回路77は、受信番組データ記憶部64に格納された受信番組データ57cと、データ格納部65内に記憶格納された放送データ57dとを比較参照するための回路となっている。この比較回路77は、リモコン56の操作によりチャンネル選択の指示がなされた際、その指示されたチャンネルのデータが現在受信されているトランスポンダ57内にあるかどうか、すなわち受信番組データ記憶部64内に記憶保存されているかどうかを比較して検出する。そして、この検出結果をCPU79に伝送するようになっている。

【0084】なお、この検出の結果、現在受信されているトランスポンダ57内に選択したチャンネルのデータがない場合は、CPU79が、周波数切り換え駆動回路75を用いて選局受信手段60の周波数を切り換えるようになっている。なお、トランスポンダ57内の放送データ57dは、チャンネルと周波数とを照合可能とするための参照テーブルとなっている。そのため、CPU79は、受信番組データ記憶部64内に選択されたチャンネルのデータがない場合、データ格納部65内に格納された放送データ57dを検索する。これによって、CPU79は、選択されたチャンネルを含むトランスポンダ57の無線周波数を検出し受信できるようになっている。なお、入力したチャンネル番号では放送番組が受信

できない場合、すなわち入力されたチャンネルに割り振られた放送がない場合は、CPU79からモニター装置55にその旨を知らせる信号が送信される。これによって、例えば、「そのチャンネルでは、放送電波を受信できません」等のメッセージをモニター装置55に表出させることが可能となっている。

【0085】また、検出の結果、現在受信されているトランスポンダ57内に選択されたチャンネルのデータがある場合は、CPU79は、選局回路76を用いてデータ抽出部63に、そのチャンネルの映像データ57a及び音声データ57bを抽出させる。これによって、選択されたチャンネルの映像データ57a及び音声データ57bが、それぞれ映像検波回路66及び音声検波回路67を介してモニター装置55に出力される。

【0086】また、メモリー78は、CPU79で行われている各部の制御動作、例えば、番組を視聴している視聴者を識別したデータや選局受信手段60の無線周波数やデータ抽出部63で抽出させている映像データ57a及び音声データ57bのチャンネル番号や受信予約の有無等を記憶格納しておくものとなっている。このメモリー78は、チューナー54の電源を切った場合も、その電源を切る前の状態のデータがメモリーされるようになっている。そのため、チューナー54は、電源を切った後、再び電源を入力すると、電源を切る前の状態に立ち上がるようになっている。

【0087】また、チューナー54の各手段を制御駆動させるためのリモコン56は、図13に示すように、番号入力ボタン80a、カーソルボタン80b及び決定ボタン80cからなるチャンネル番号入力ボタン80と、同チャンネル内で画面を切り換えるための画面切り換え用ボタン81と、同チャンネル内で音声を切り換えるための音声切り換え用ボタン82と、チューナー54に視聴者を認識させるための視聴者入力ボタン83と、個別高視聴チャンネル順番表73を呼び出すための高視聴チャンネル呼び出しボタン84と、各種命令信号を送信するための発光部85と、を有している。また、リモコン56には、図14に示すように、電源バッテリー86と、各ボタンによって操作された内容に基づいて命令信号を生成するための命令信号発生部87が内蔵されている。

【0088】視聴者入力ボタン83は、リモコン56の表面に形成されたワンタッチ式押しボタンで形成されている。この視聴者入力ボタン83を押すと、図15のように、モニター装置55のディスプレイ58に「ユーザー番号を入力してください」等のメッセージが表示されるようになっている。このメッセージに従い、視聴者が自分のユーザー番号（視聴者を識別するための番号）を入力することにより、リモコン56から視聴者を認識するための信号がチューナー54に送信されるようになっている。これによって、チューナー54が、番組を視聴

する視聴者を識別できるようになっている。なお、第2の実施の形態では、上述したように構成したが、この構成に限定されるものでなく、例えば視聴者入力ボタン83を複数設け、それぞれワンタッチでダイレクトに視聴者を認識させるための信号を送信するようにしてもよい。また、チューナー54及びモニター装置55の電源を入力する際に、図15に示した画面を必ず経由してからチャンネル入力を可能とするように構成してもよい。

【0089】なお、高視聴チャンネル呼び出しボタン84は、視聴者入力ボタン83により視聴者を認識させた後に、その視聴者独自の番組表となる個別高視聴チャンネル順番表73をモニター装置55に表示させるためのボタンとなっている。この高視聴チャンネル呼び出しボタン84は、リモコン56の表面に形成されたワンタッチ式押しボタンで形成されており、視聴者がモニター装置55のディスプレイ58に個別高視聴チャンネル順番表73を呼び出したい場合に押し操作をするためのものとなっている。すなわち、高視聴チャンネル呼び出しボタン84を作動させ命令信号発生部87から発光部85を介して命令信号が送信されると、この命令信号がチューナー54に受信される。

【0090】すると、チューナー54では、チャンネルカウンタ70に視聴者別にカウントされ記憶された内容と、データ格納部65に格納された放送データ57d及びクロックデータ57eとに基づいて表作成手段71によって作成された個別高視聴チャンネル順番表73が、制御部72の制御によってモニター装置55に伝送される。これによって、個別高視聴チャンネル順番表73が、ディスプレイ58に表示される。視聴者は、この個別高視聴チャンネル順番表73内の任意のチャンネルを指示することによって、チューナー54にそのチャンネルを選局受信させることができる。

【0091】上述したように構成された番組選局ガイド装置51において、チューナー54に番組を視聴する視聴者を認識させて受信されたチャンネルをモニターすることにより各視聴者用の個別高視聴チャンネル順番表73を作成するためのデータを作成し、チャンネルカウンタ70に保存する動作について図16に示して説明する。

【0092】まず視聴者は、番組を視聴する際に、最初に視聴者入力ボタン83を操作しチューナー54に対して視聴者識別用の信号を送信する(ステップS31)。すると、この視聴者識別用の信号がチューナー4に入力される(ステップS32)。これによって、チューナー4の受光部68がこの信号を受信しID認識部69に伝送する。ID認識部69は、この信号を認識して番組の視聴者を認識しその旨を制御部72に伝える(ステップS33)。この状態から、チューナー54によって識別された視聴者は、番号入力ボタン80を用いるか、後述する個別高視聴チャンネル順番表73からチャンネルを

選択する等して、チューナー54に任意のチャンネルを選局受信させる(ステップS34)。これによって、識別された視聴者によって選局受信されたチャンネルによって送られる番組の映像データ57a及び音声データ57bが映像検波回路66及び音声検波回路67を介してモニター装置55に出力される(ステップS35)。

【0093】なお、このときチューナー54に受信されているチャンネルを含むトランスポンダ57は、この番組の映像データ57a及び音声データ57bに、このトランスポンダ57で送られる全てのチャンネルの番組に関するデータである受信番組データ57cと、放送局52の各チャンネルで送られる番組情報に関するデータである放送データ57dと、現在時刻に関するデータであるクロックデータ57eとを重畳させた状態で、放送局52から送られてくる。チューナー54では、このように送られたトランスポンダ57を受信した際に、このトランスポンダ57内の各種デジタルデータのうちの必要な情報を抽出して記憶保存する(ステップS36)。

【0094】すなわち、チューナー54は、受信番組データ57cの必要情報をデータ抽出部63で抽出し、それを受信番組データ記憶部64に格納する。また、チューナー54は、放送データ57dの必要情報及びクロックデータ57eをデータ抽出部63で抽出し、それらをデータ格納部65に格納する。なお、放送局52から送られてくるトランスポンダ57内の放送データ57dは、1日1回程度の割合で、そのデータの内容が更新される。また、クロックデータ57eは、数秒おきに更新される。チューナー54では、データ内容に更新がある場合は、その更新したデータをデータ格納部65に格納する(ステップS37)。

【0095】一方、このようにチャンネルの選局受信が始まると、チューナー54の制御部72内に備えられたCPU79は、この選局受信されたチャンネルをモニターする(ステップS38)。すなわち、CPU79は、識別された視聴者によって選局受信されたチャンネルの番号をメモリー78に記憶させると共に、タイマー74を駆動しその受信時間を計測させる(ステップS39)。そして、このチャンネルの選局受信が所定時間を超えた場合(YES)、CPU79はチャンネルカウンタ70にその旨を伝達する(ステップS40)。一方、このチャンネルの選局受信が所定時間を超えない間に他のチャンネルに切り換えられたり、あるいは視聴者の登録が変更になったり、さらには電源がOFFになった場合には(NO)、CPU79はタイマー74をリセットしそのチャンネルのモニターを停止する(ステップS41)。

【0096】チャンネルカウンタ70は、CPU79から特定の視聴者による特定のチャンネルの選局受信が所定時間を超えた旨が伝えられると、その視聴者におけるチャンネルの受信回数をカウント(加算)し記憶する

(ステップS42)。これによって、チャンネルカウンタ70内には、どの視聴者によって、どのチャンネルが何回、所定時間を超えて選局受信されたかのデータが格納される。なお、後述するように表作成手段71は、リモコン56の操作により高視聴チャンネル呼び出しボタン84が押され際に、上述したようにチャンネルカウンタ70に記憶された視聴者別のデータ内容に基づいて、個別高視聴チャンネル順番表73を作成し、これをモニター装置55に出力させるようになっている。

【0097】次に、上述したように構成された番組選局ガイド装置51を用いて、特定の視聴者が良く視聴しているチャンネルを上位から順番に並べた個別高視聴チャンネル順番表73をモニター装置55に出力させるまでの動作と、モニター装置55に表示された画面からチャンネルを選択するための動作について、図17に示して説明する。

【0098】上述したステップS34で、モニター装置55に出力された番組がその視聴者の好みに合わない場合、視聴者は、リモコン56を操作して個別高視聴チャンネル順番表73をモニター装置55に表示させ、表示されたチャンネルの中から所望のチャンネルを指定することによってチャンネルを切り換えることが可能である。その場合、まず視聴者は、リモコン56の高視聴チャンネル呼び出しボタン84を押し操作する(ステップS43)。すると、リモコン56の命令信号発生部87では、ID認識部69で識別された視聴者用の個別高視聴チャンネル順番表73をモニター装置55に表示させるための命令信号を生成され、この命令信号が発光部85からチューナー54へ送信される(ステップS44)。

【0099】チューナ54は、リモコン56から送信されてきた命令信号を、受光部68で受信しこれを制御部72のCPU79に伝送する(ステップS45)。CPU79は、この命令信号に従いチャンネルカウンタ70を制御駆動し、チャンネルカウンタ70内に格納された視聴者別の各チャンネル毎の選局受信回数をカウントしたデータの中から、現在識別中の視聴者に関するデータを表作成手段71へ伝送させる(ステップS46)。これによって、表作成手段71は、チャンネルカウンタ70内に格納された現在識別中の視聴者における選局受信回数に関するデータを取得する(ステップS47)。一方、表作成手段71は、CPU79の制御によりデータ格納部65内に格納された放送データ57d及びクロックデータ57eを取得する(ステップS48)。

【0100】表作成手段71は、ステップS47及びステップS48で取得した各データに基づき以下の順序で現在識別中の視聴者用の個別高視聴チャンネル順番表73を作成する。まず、表作成手段71は、チャンネルカウンタ70から送られてきた各チャンネル毎のカウ

ト数を集計し、この視聴者においてカウント数の多いチャンネルを個別高視聴チャンネル順番表73のチャンネル表示欄73cの上位から順番に並べ、そのチャンネルを書き込む(ステップS49)。このとき集計された各チャンネルの視聴回数は、それぞれの視聴回数表示欄73fに書き込まれる。

【0101】次に、表作成手段71は、データ格納部65から取得した放送データ57d及びクロックデータ57eに基づいて、各チャンネルについて現在時刻において受信可能か不可かを判断する(ステップS50)。そして、ステップS50で判断した結果、その日の放送が終了していたり、視聴者と放送局52との契約が満了してしまった等の理由により、現在時刻において受信が不可(NO)のチャンネルには、そのチャンネルの受信可否表示欄73dに「×」が書き込まれる(ステップS51)。一方、ステップS50で判断した結果、現在時刻において受信可能(YES)のチャンネルには、そのチャンネルの受信可否表示欄73dに「可」が書き込まれる(ステップS52)。

【0102】さらに、ステップS48で取得した放送データ57dに基づき、ステップS52で「可」の表示がなされたチャンネルの放送中番組表示欄73eには、各チャンネルで現在時刻において放送されている番組のタイトルが書き込まれる(ステップS53)。このようにして個別高視聴チャンネル順番表73の各欄の書き込みが終了すると、この個別高視聴チャンネル順番表73は、CPU79の制御によりモニター装置55へ伝送され、モニター装置55のディスプレイ58に表示される(ステップS54)。なお、ステップS51で、受信可否表示欄73dに受信不可のマークとなる「×」が書き込まれたチャンネルについては、ランキングの順位と視聴回数が表示されるのみで、この画面から選局受信をすることはできないようになっている。

【0103】視聴者は、このようにモニター装置55に表示された個別高視聴チャンネル順番表73のチャンネル番号及び番組のタイトル等を参照し、表示されたチャンネルの中に所望のチャンネルがある場合(YES)に、そのチャンネルをリモコン56のカーソルボタン80b及び決定ボタン80cを用いて指示する(ステップS55)。なお、個別高視聴チャンネル順番表73に表示されたチャンネルの中に所望のチャンネルがない場合(NO)には、リモコン56を用いて個別高視聴チャンネル順番表73内のリターン部73hを指示することによって元のチャンネルの画面に戻ることができる(ステップS56)。

【0104】なお、ステップS55の動作を行うと、チャンネルを切り換える旨の信号が、リモコン56からチューナー54に送信される。これによって、制御部72が選局受信手段60をそのチャンネルに切り換えるように制御駆動し(ステップS57)、視聴者の所望のチャ

ンネルで送られる番組がモニター装置55に出力される(ステップS58)。

【0105】各実施の形態の番組選局ガイド装置1, 51は、それぞれ上述したように構成したが、本発明の要旨を逸脱しない範囲で種々変更可能である。例えば、上述した各実施の形態では、視聴者が選局したチャンネルが所定時間を超えて受信された際に、チャンネルカウンタ19, 70を用いてカウントすることによってチャンネルの受信頻度を検出し、このデータを基に高視聴チャンネル順番表23及び個別高視聴チャンネル順番表73を作成するようにしているが、例えば、チャンネルの受信時間を単純に計測しこの受信時間によってランキングを形成するように構成してもよい。

【0106】また、各実施の形態の番組選局ガイド装置1, 51では、高視聴チャンネル順番表23及び個別高視聴チャンネル順番表73に、それぞれ現在時刻において受信可能なチャンネルと不可のチャンネルとを、視聴者が視認できるように混在させた状態で表示させているが、受信できないチャンネルに関しては削除した状態で表示させるようにしてもよい。

【0107】

【発明の効果】請求項1, 2, 3及び4記載の発明によれば、高視聴チャンネル順位表中に表示されたチャンネルが現在時刻において受信可能かどうかを視聴者が視認できるので、高視聴チャンネル順位表を表示手段に表示させるだけで、表示されたチャンネルの中から受信可能なチャンネルを選局することが可能となり、視聴者にとってチャンネル操作がより容易なものとなる。

【0108】なお、請求項1及び3記載の発明によれば、所定時間以下の選局受信の場合、選局回数としてカウントされないため、視聴する意志がなくチャンネルを単に回しているだけの場合加算されず、よりリアルな高視聴チャンネル順番表を形成することが可能な番組選局ガイド装置となる。

【0109】また、請求項3及び4記載の発明によれば、高視聴チャンネル順番表から現在時刻において受信不可のものを削除した状態のものを表示手段に表示させるようにしたので、視聴者は受信不可のものを誤って選択するというような問題が生じない利便性の高い番組選局ガイド装置となる。

【0110】また、請求項5記載の発明によれば、個別高視聴チャンネル順番表を各視聴者が自分専用のものと持つことができるので、個別高視聴チャンネル順番表に完全に自分の好みを反映させることができる。したがって、各視聴者にとってチャンネルの選局する際の利便性が、非常に高い番組選局ガイド装置となる。

【0111】また、請求項6記載の発明によれば、個別高視聴チャンネル順位表中に表示されたチャンネルが現在時刻において受信可能かどうかを視認できるので、視聴者にとってチャンネル操作がより容易なものとなる。

また、請求項7記載の発明によれば、現在時刻において受信不可のチャンネルを削除した状態とし、受信可能なチャンネルのみを視聴者が視認でき、かつ選局することが可能なので、視聴者は受信不可のものを誤って選択するというような問題が生じない利便性の高い番組選局ガイド装置となる。

【図面の簡単な説明】

【図1】本発明の第1の実施の形態の番組選局ガイド装置の全体概略構造を示したブロック図である。

10 【図2】図1に示した番組選局ガイド装置のチューナーに対して放送局から送られる放送電波の内部構造を示した模式図である。

【図3】図1に示した番組選局ガイド装置のモニター装置に表示させる高視聴チャンネル順番表の一例を示した図である。

【図4】図1に示した番組選局ガイド装置の制御部を主に示したブロック図である。

【図5】図1に示した番組選局ガイド装置の全体を模式的に示した斜視図である。

20 【図6】図5に示した番組選局ガイド装置のリモコンの内部構造を示したブロック図である。

【図7】本発明の第1の実施の形態の番組選局ガイド装置を用いて高視聴チャンネル順番表を作成するためのデータを作成する際の動作を示したフローチャート図である。

【図8】本発明の第1の実施の形態の番組選局ガイド装置を用いて高視聴チャンネル順番表をモニター装置に表示させ、その表示させた高視聴チャンネル順番表を用いてチャンネルを選局受信する際の動作を示したフローチャート図である。

30 【図9】本発明の第2の実施の形態の番組選局ガイド装置の全体概略構造を示したブロック図である。

【図10】図9に示した番組選局ガイド装置のチューナーに対して放送局から送られる放送電波の内部構造を示した模式図である。

【図11】図9に示した番組選局ガイド装置のモニター装置に表示させる個別高視聴チャンネル順番表の一例を示した図である。

40 【図12】図9に示した番組選局ガイド装置の制御部を主に示したブロック図である。

【図13】図9に示した番組選局ガイド装置の全体を模式的に示した斜視図である。

【図14】図13に示した番組選局ガイド装置のリモコンの内部構造を示したブロック図である。

【図15】図9に示した番組選局ガイド装置のモニター装置に視聴者を識別させるための案内画面を表示させた例を示した図である。

50 【図16】本発明の第2の実施の形態の番組選局ガイド装置を用いて個別高視聴チャンネル順番表を作成するためのデータを作成する際の動作を示したフローチャート

図である。

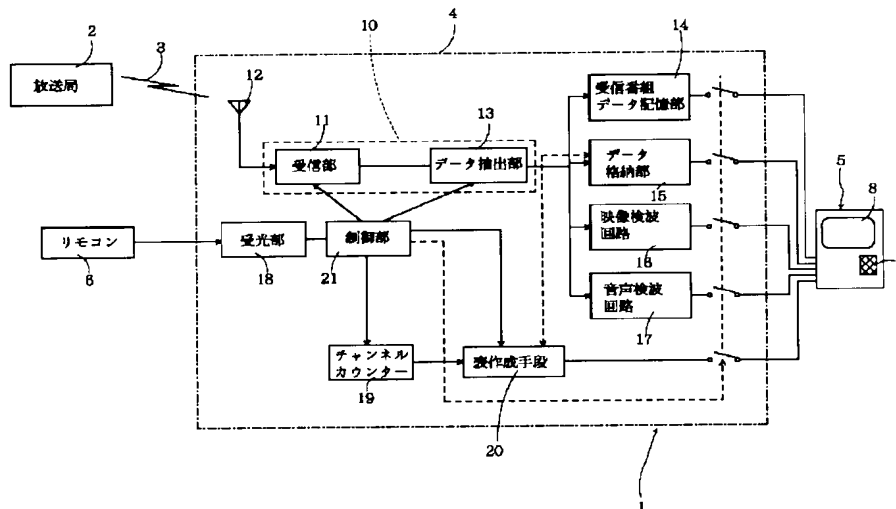
【図17】本発明の第2の実施の形態の番組選局ガイド装置を用いて個別高視聴チャンネル順番表をモニター装置に表示させ、その表示させた個別高視聴チャンネル順番表を用いてチャンネルを選局受信する際の動作を示したフローチャート図である。

【符号の説明】

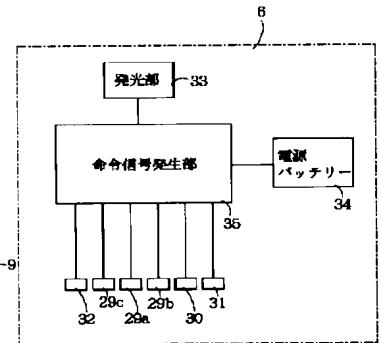
- 1 番組選局ガイド装置
- 2 放送局
- 3 放送電波
- 4 チューナー（受信装置）
- 5 モニター装置（表示手段）
- 6 リモコン（コントローラ）
- 7 c 放送番組データ
- 7 d 放送データ（各チャンネルで送られる番組の情報に関するデータ）
- 7 e クロックデータ（現在時刻に関するデータ）

- 10 選局受信手段
- 13 放送番組データ読み取り部
- 14 番組データ記憶部
- 15 データ格納部
- 16 番組ロック入力ボタン（番組ロック入力部）
- 17 選局受信手段
- 19 チャンネルカウンター（記憶手段）
- 20 表作成手段
- 23 高視聴チャンネル順番表
- 51 番組選局ガイド装置
- 54 チューナー（受信装置）
- 55 モニター装置（表示手段）
- 60 選局受信手段
- 69 ID認識部（識別手段）
- 70 チャンネルカウンター（記憶手段）
- 71 表作成手段
- 73 個別高視聴チャンネル順番表

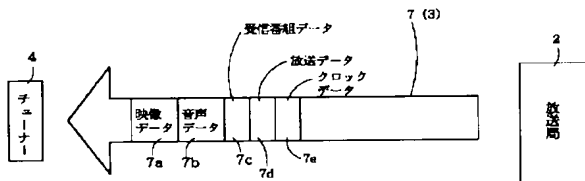
【図1】



【図6】



【図2】

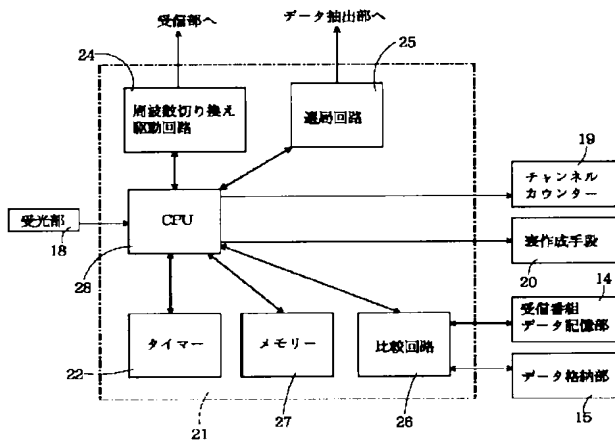


【図3】

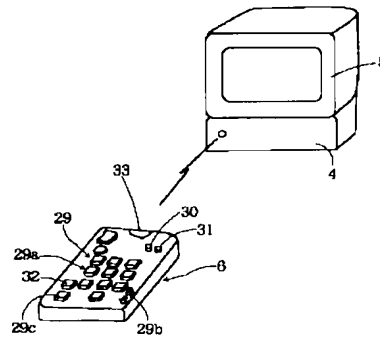
'98.4~6 月曜日 高視聴チャンネル一覧 0:21 p.m.

選択	No.	チャンネル	受信	放送中番組	視聴回数
	1	100ch	可	映画「風と共に去りぬ」	153
23j	2	301ch	可	ワールドサッカー「パルマ」VS「フィオレンティーナ」	102
	3	901ch	×		58
23c	...	...	...	...	...
23a	10	255ch	×		8
23b	NEXT PAGE				
23g	戻る				
23h					
23d					
23e					
23f					

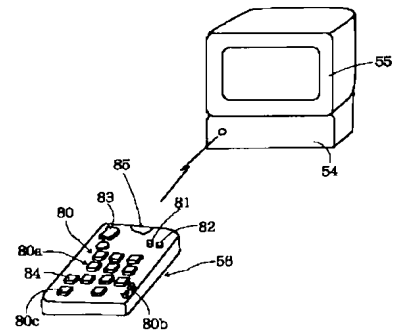
【図4】



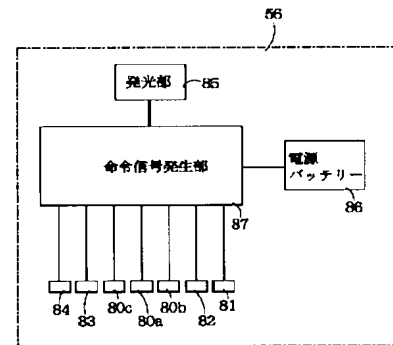
【図5】



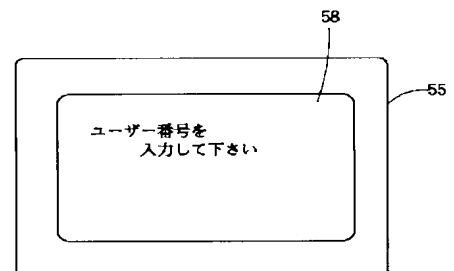
【図13】



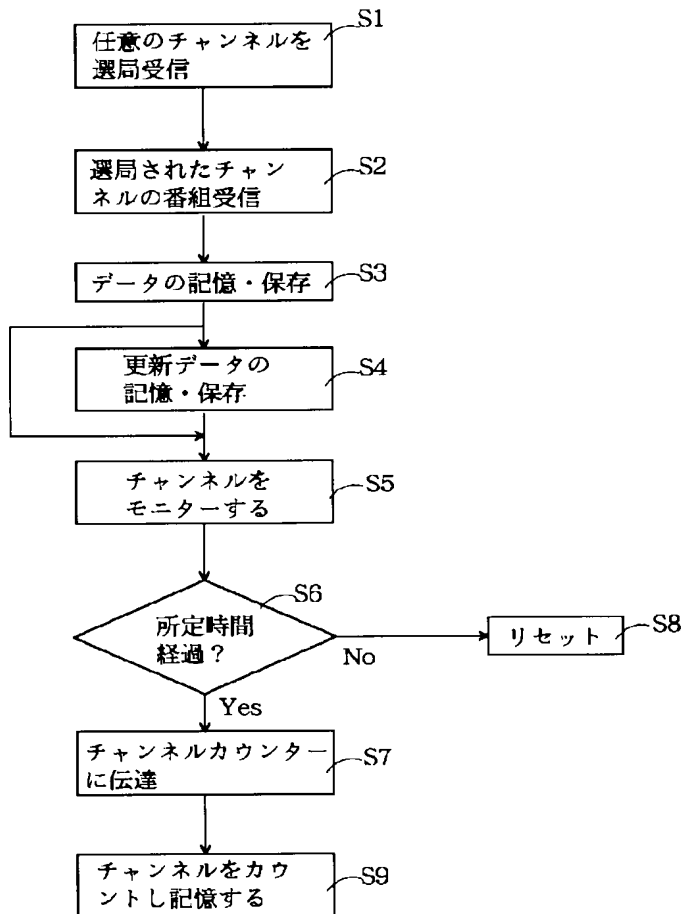
【図14】



【図15】

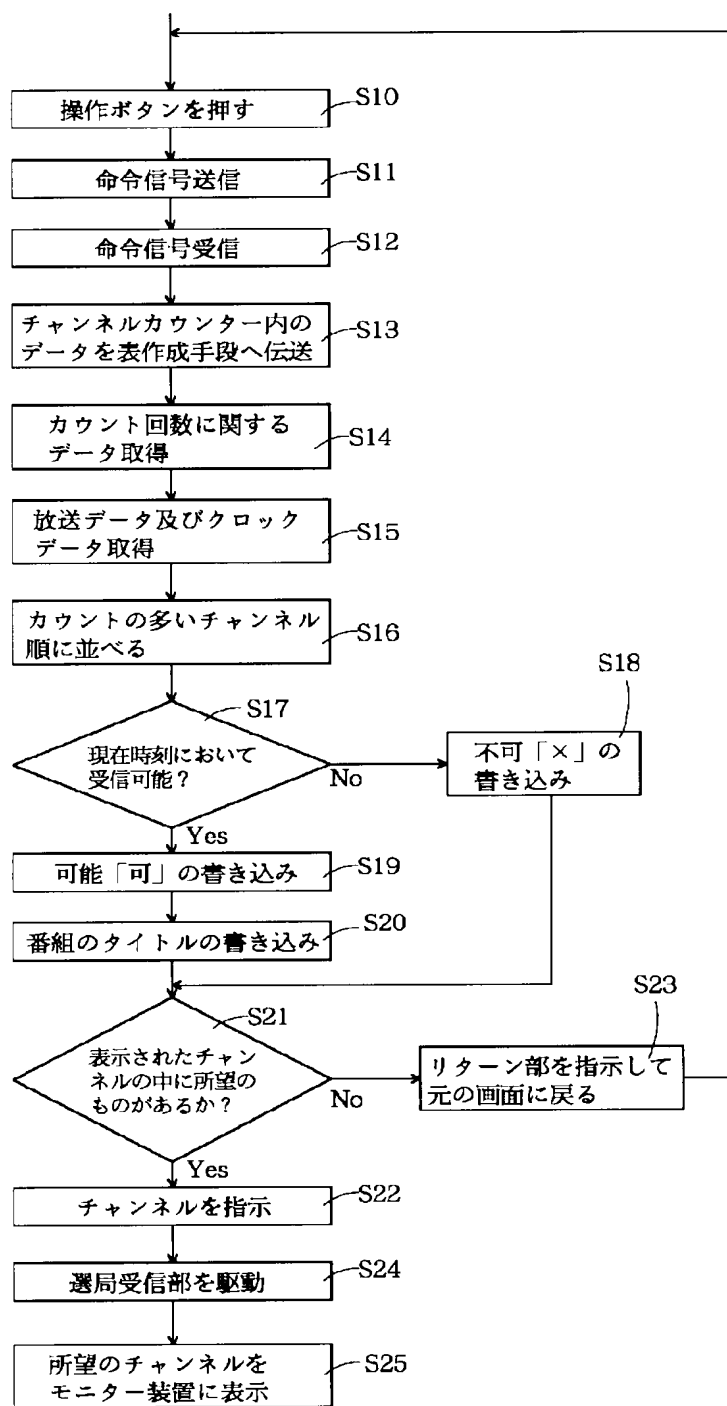


【図7】

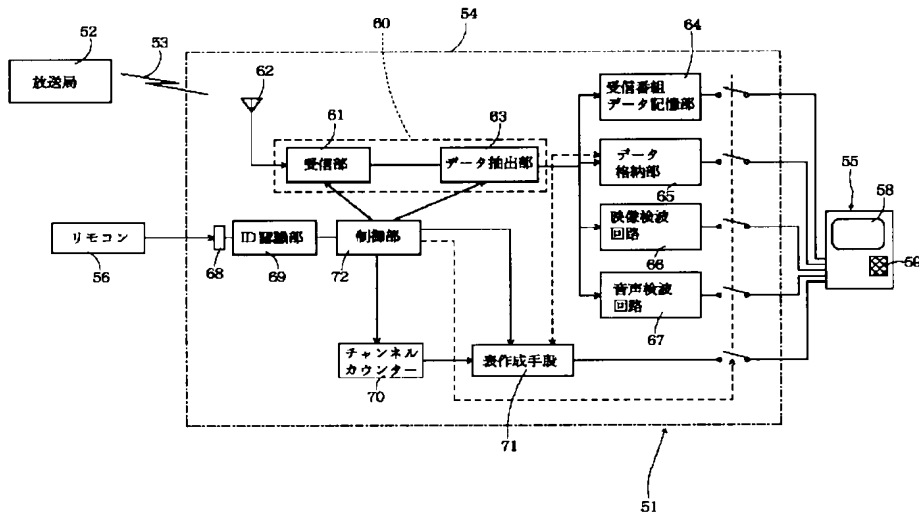




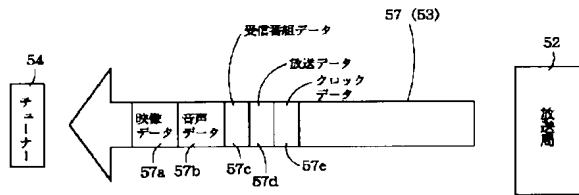
【図8】



【図9】



【図10】

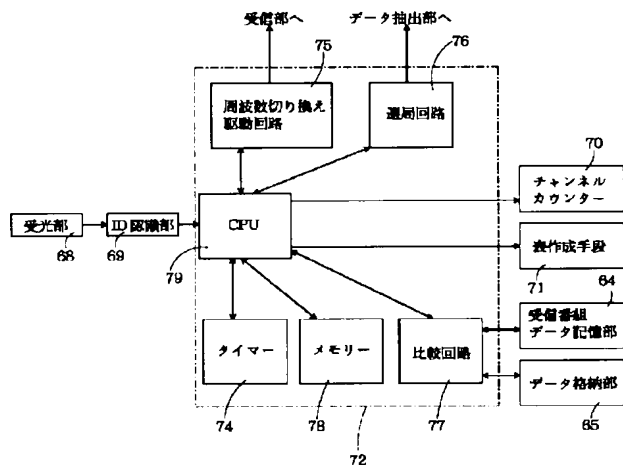


【図11】

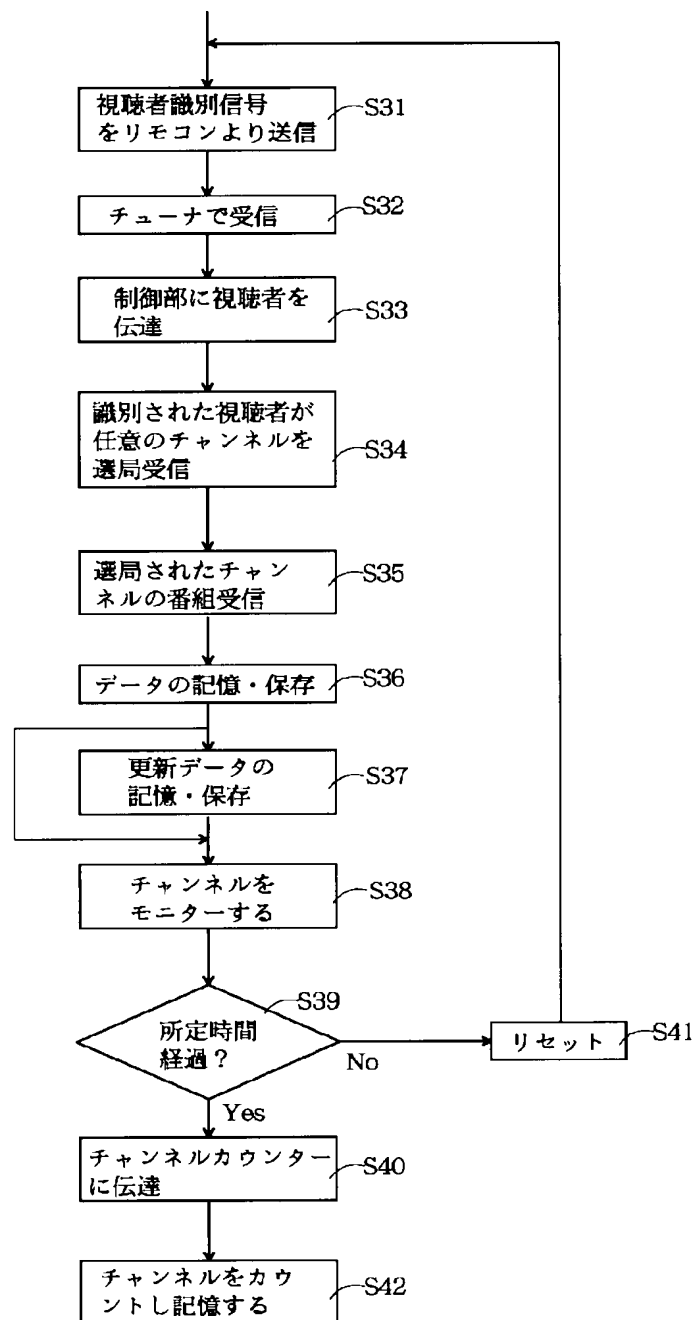
98.4~8 [ユーザー1] 高視聴チャンネル一覧 9:46 p.m. (月曜日)

選択	No.	チャンネル	受信	放送中番組	視聴回数
73k	1	175ch	可	ウェザー-24H	23
	2	901ch	可	NBA ファイナル「ユタvsシカゴ」	22
	3	901ch	×		18
73c	...	...			
73a	10	255ch	×		2
73b	NEXT PAGE				
73g	戻る				
73h					
73d					
73e					
73f					

【図12】



【図16】



【図17】

